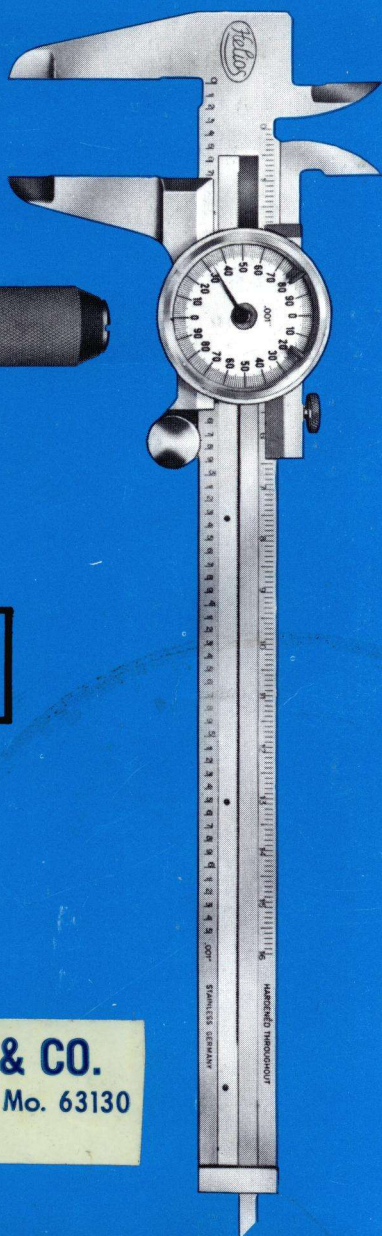


PRECISION TOOLS



Fowler

Catalog No. 870

DOLPH BOETTLER & CO.

569 Melville Ave. - St. Louis, Mo. 63130

721-4607

Fred U. **FOWLER** *Company*



A Subsidiary of U.N.A. Corporation

AUBURNDALE, MASS. 02166 U.S.A.

TELEX NO. 92-2435



Fowler

FRED V. FOWLER CO.

PRECISION TOOLS

Fred V. FOWLER Company

In order to better serve our customers, we have recently built a new building, with twenty thousand square feet of ultra modern warehouse and office space wherein we have the largest stock of precision measuring tools in America — perhaps in the World. Above are a few views of our facilities.

DIAL CALIPERS • VERNIER CALIPERS • DIAL INDICATORS • MICROMETERS • HEIGHT GAUGES • HEIGHT TRANSFER MICROMETERS • OPTICAL MEASURING INSTRUMENTS

OUR IMPORT PROGRAM

A. The import of measuring and testing equipment of utmost quality and reliability.

B. The import of measuring tools **not** manufactured in this country in order to enable the American machinist to enjoy the benefit of their use.

C. The import of optical equipment for research and measurement — of the latest design and optimum quality, **at prices within reason**. These three basic ideas are represented by the tools illustrated in this catalog. They have been built to our strict specifications from the finest materials available, and represent the efforts and demands of engineers, tool makers, and machinists from all over the world.

We have made contracts with the leading producers of precision tools in **Europe, England,**

and Japan so that we import their tools exclusively for distribution in the United States. These firms allot very large portions of their manufacturing facilities to our requirements so that we have under contract many millions of dollars of plant capacity and an unlimited amount of "know how" in toolmaking. We enumerate herewith a few of these manufacturers:

Schneider & Kern (Helios), and Carl Frank in Germany, W. Frost Engineers Ltd., Verdict Gauge (Sales) Ltd., Rabone Chesterman Ltd., Rubert & Co. Ltd., T. Bowers & Co. in England and Peacock in Japan. Each one of them being the leader in his particular field. We thus feel that the tools we are offering you in our present catalog listing are **the best** that can be had anywhere and at any price.

GUARANTEE

Every tool listed in our catalog is warranted free from imperfections and defects in material or workmanship. If given proper care, they will give many long years of service. Our obligation under this warranty is as follows: If any tool proves to be imperfect or defective under conditions of normal use, we agree to repair or replace the tool, if immediately returned to us at Auburndale, Massachusetts, transportation charges prepaid. Under no circumstances, however, do we assume responsibility for breakage where flaws do not appear or for tools which have suffered from abusive treatment or which have been stamped with the owner's name, changed or experimented upon, marked or otherwise damaged.

We do not undertake to pay for repairs made on our tools without our authorization.

Large inventories are maintained for prompt and efficient delivery.

Sales and service available from industrial distributors throughout the United States.

LIMITS OF ACCURACY

Inspection VERNIER CALIPER GAUGES, HEIGHT GAUGES and DEPTH GAUGES are manufactured and inspected to meet specifications in accordance with DIN standards specifications No. 862 — 1960 edition.

PRECISION MICROMETERS OF ALL TYPES are manufactured and inspected to meet specifica-

tions in accordance with DIN standards specifications No. 863 — 1960 edition.

DIAL GAUGES, BORE GAUGES, AND DIAL INDICATORS are manufactured to meet A.G.D. specifications.

We reserve the right to change designs, specifications and add improvements to our lines of tools.

"HELIOS" DIAL CALIPERS

Made of Stainless Steel — Lustre Chrome Finish — All With Adjustable Dials
SPECIAL FEATURES

Made of hardened stainless steel throughout.

Satin chromed finish.

All measuring surfaces are hardened, ground, and lapped for extreme accuracy.

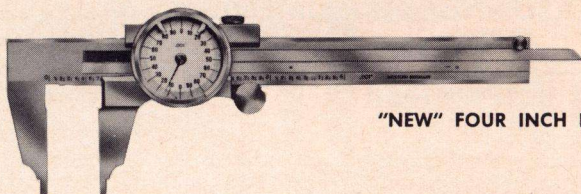
Extra length of jaws insures squareness and perfect alignment.

Dial reads directly in .001" (accuracy guaranteed within .001")

Beam scale in inches and mm. (except 4" caliper).

All measurements can be read directly on dial.

Dial is adjustable, to compensate for wear.



"NEW" FOUR INCH DIAL CALIPER

CODE NO. RANGE

52-005-004 0"-4"
in .001"

DESCRIPTION

Direct reading stainless steel dial caliper with jaws for outside and inside measurement. Adjustable dial and depth rod. Inside measurement nibs are .2". Satin chrome finish. Depth of jaws 1.55".

PRICE

\$19.50

(Price includes
Leather Case)

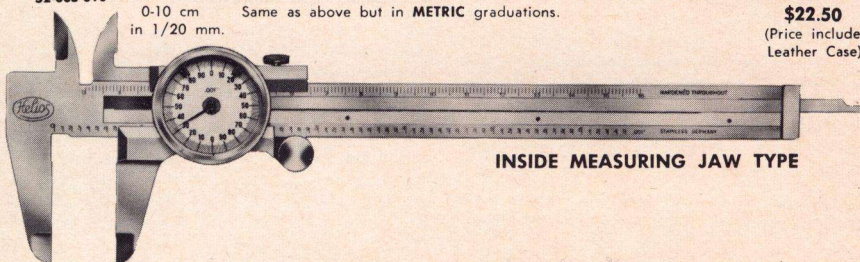
52-005-010

0-10 cm
in 1/20 mm.

Same as above but in METRIC graduations.

\$22.50

(Price includes
Leather Case)



INSIDE MEASURING JAW TYPE

52-010-006 0"-6"
in .001"

Direct reading stainless steel dial caliper with inside and outside jaws. Adjustable dial and depth rod. Satin chrome finish. Depth of jaws 1.6".

\$34.95

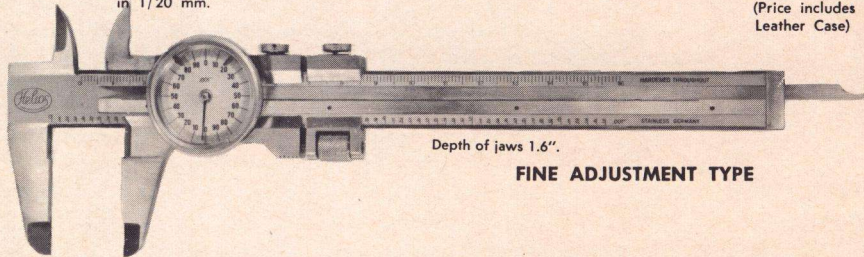
(Price includes
Leather Case)

52-010-016 0-16 cm
in 1/20 mm.

Same as above but in METRIC graduations.

\$39.50

(Price includes
Leather Case)



Depth of jaws 1.6".

FINE ADJUSTMENT TYPE

52-020-006 0"-6"
in .001"

Same as above, but fitted with double set screw for fine adjustment.

\$39.50

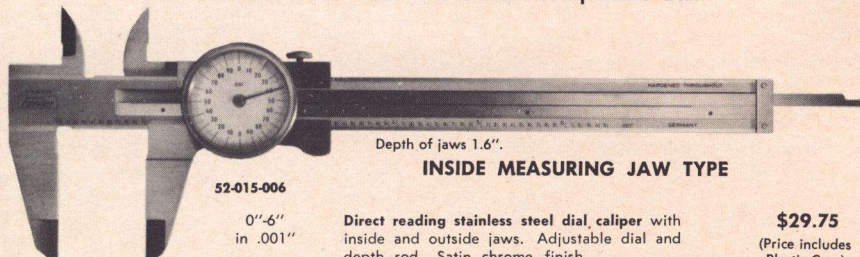
(Price includes
Leather Case)



DIAL CALIPERS

A Lower Price Caliper with the Same Features

Made of Stainless Steel — Satin Chromed — Adjustable Dial



Depth of jaws 1.6".

INSIDE MEASURING JAW TYPE

52-015-006

0"-6"
in .001"

Direct reading stainless steel dial caliper with inside and outside jaws. Adjustable dial and depth rod. Satin chrome finish.

\$29.75

(Price includes
Plastic Case)

HEAVY DUTY "HELIOS" DIAL CALIPERS

DIAL CALIPERS WITH FINE ADJUSTMENT

MADE OF STAINLESS STEEL — LUSTRE CHROME FINISH — ALL WITH ADJUSTABLE DIALS

Made of hardened stainless steel throughout. Satin chromed finish.

All measuring surfaces are hardened, ground, and lapped for extreme accuracy.

Extra length of jaws insures squareness and perfect alignment.

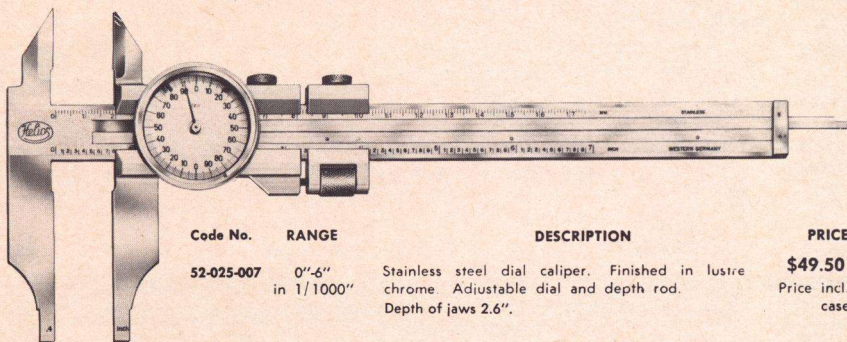
This type of dial caliper is best suited for heavy production where a tool is subject to constant wear. It has knife edges in upper jaws and lower jaws are designed for outside and inside measurements. Inside measurement nibs are .4". Beam and jaws are fully hardened. Depth rod reading directly on vernier scale. Beam reads in inches and millimeters.

Dial reads directly in .001" (accuracy guaranteed within .001").

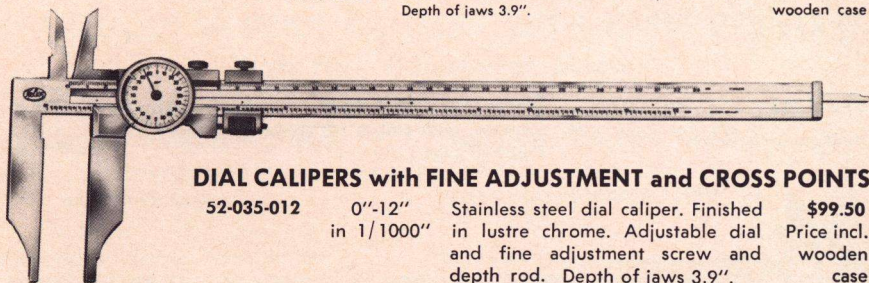
Beam scale in inches and mm. (except 4" caliper).

All measurements can be read directly on dial.

Dial is adjustable, to compensate for wear.

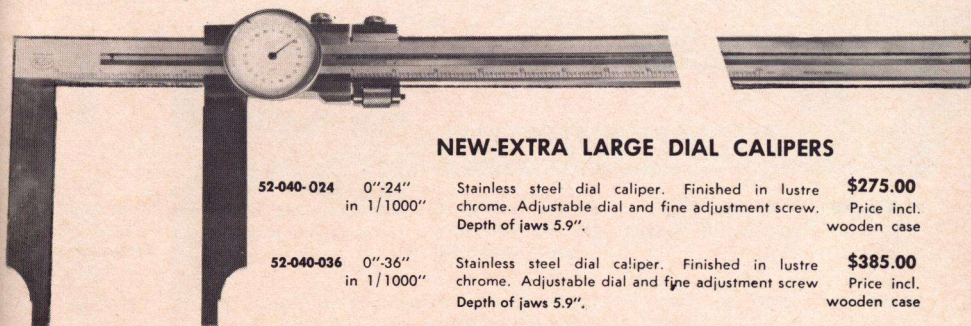


Code No.	RANGE	DESCRIPTION	PRICE
52-025-007	0"-6" in 1/1000"	Stainless steel dial caliper. Finished in lustre chrome. Adjustable dial and depth rod. Depth of jaws 2.6".	\$49.50 Price incl. case
52-025-009	0-17 mm. in 1/20 mm.	Stainless steel dial caliper. Finished in lustre chrome. Adjustable dial and depth rod. Depth of jaws 2.6".	\$50.00 Price incl. case
52-025-010	0"-10" in 1/1000"	Stainless steel dial caliper. Finished in lustre chrome. Adjustable dial and depth rod. Depth of jaws 3.9".	\$68.00 Price incl. wooden case
52-025-012	0"-12" in 1/1000"	Stainless steel dial caliper. Finished in lustre chrome. Adjustable dial and fine adjustment screw. Depth of jaws 3.9".	\$84.00 Price incl. wooden case



DIAL CALIPERS with FINE ADJUSTMENT and CROSS POINTS

52-035-012	0"-12" in 1/1000"	Stainless steel dial caliper. Finished in lustre chrome. Adjustable dial and fine adjustment screw and depth rod. Depth of jaws 3.9".	\$99.50 Price incl. wooden case
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NEW-EXTRA LARGE DIAL CALIPERS

52-040-024	0"-24" in 1/1000"	Stainless steel dial caliper. Finished in lustre chrome. Adjustable dial and fine adjustment screw. Depth of jaws 5.9".	\$275.00 Price incl. wooden case
52-040-036	0"-36" in 1/1000"	Stainless steel dial caliper. Finished in lustre chrome. Adjustable dial and fine adjustment screw. Depth of jaws 5.9".	\$385.00 Price incl. wooden case

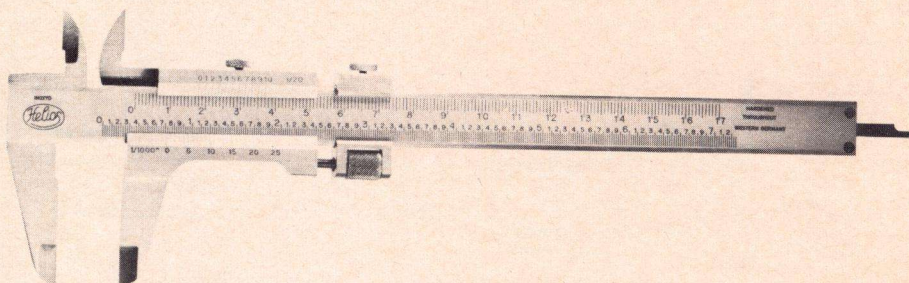
FOR HEIGHT GAUGE ATTACHMENT FOR ABOVE SEE PAGE 7g.



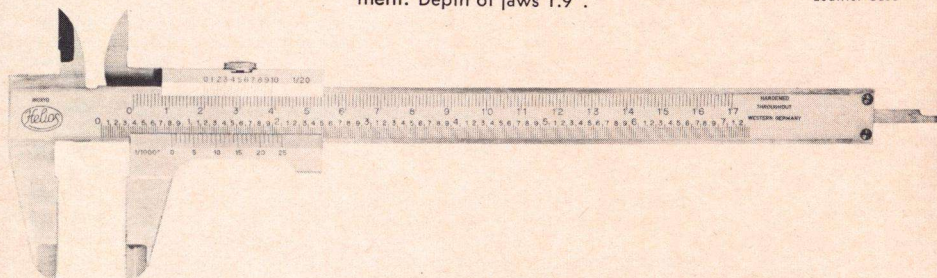
HIGH PRECISION STAINLESS STEEL CALIPERS

SPECIAL FEATURES

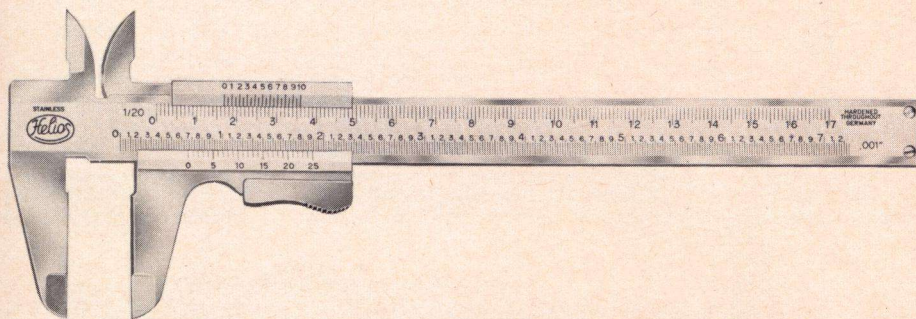
Made of hardened **stainless steel** throughout — **satín chrome finish**. All measuring surfaces are ground and lapped for extreme accuracy. Vernier scales of .001" and 1/20 mm. Extra long vernier to insure accuracy. Jaws designed for outside, inside, and thread measurement. All measurements can be read directly from vernier. Has a depth scale which can be read directly on verniers.



RANGE	Description	PRICE
52-050-006 0"-6" by .001" 0-17 cm. by 1/20 mm.	Helios Vernier Caliper, Stainless Steel-Satín Chrome, with double set screw for fine adjustment. Depth of jaws 1.9".	\$20.75 Price inc. Leather Case



52-045-006 0"-6" by .001" 0-17 cm. by 1/20 mm.	Helios Vernier Caliper, Stainless Steel-Satín Chrome, with single set screw and depth rod. Depth of jaws 1.6".	\$17.50 Price inc. Leather Case
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52-055-006 0"-6" by .001" 0-17 cm. by 1/20 mm.	Helios Vernier Caliper, Stainless Steel-Satín Chrome, with spring thumb lock and depth rod. Depth of jaws 1.53".	\$18.50 Price inc. Leather Case
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52-060-006 0"-6" by .001" 0"-6" by 1/128"	Fowler Vernier Caliper, Satín Chrome Finish, with spring thumb lock and depth rod. Depth of jaws 1.6".	\$15.00 Price inc. Vinyl Case
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"HELIOS" VERNIER CALIPERS FOR LARGE MEASUREMENTS

With Fine Adjustment Screw

SPECIAL FEATURES

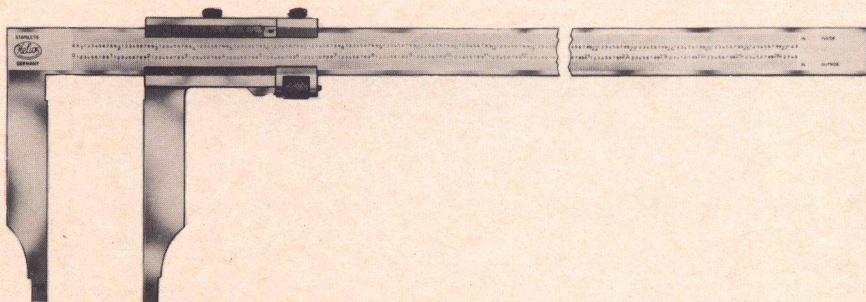
Stainless Steel — Satin Chrome Finish
Outside and inside measurements possible
Micro adjustment screw

Heavy duty construction—hardened throughout
Ground and lapped jaws
Upper and lower verniers read 1/1000"
Direct reading on inside measurements

Code No.	Range	Depth of Jaws	Description	Stainless Steel	Stainless Steel
				Dull Chromed	Plain Finish
52-065-008	0"- 8"	2 1/2"	Heavy Duty Plain Jaw Type Caliper	\$ 30.50	
52-065-012	0"-12"	3 3/8"	Heavy Duty Plain Jaw Type Caliper	\$ 52.00	
52-065-020	0"-20"	6"	Heavy Duty Plain Jaw Type Caliper	125.00	
52-065-024	0"-24"	6"	Heavy Duty Plain Jaw Type Caliper	156.00	
52-065-040	0"-40"	6"	Heavy Duty Plain Jaw Type Caliper	235.00	
52-065-048	0"-48"	6"	Heavy Duty Plain Jaw Type Caliper	325.00	
52-065-060	0"-60"	6"	Heavy Duty Plain Jaw Type Caliper	498.00	
52-065-065	0"-60"	5"	Heavy Duty Plain Jaw Type Caliper		\$350.00
52-065-072	0"-72"	6"	Heavy Duty Plain Jaw Type Caliper	685.00	
52-065-075	0"-72"	6"	Heavy Duty Plain Jaw Type Caliper		440.00
52-065-120	0"-120"	8"	Heavy Duty Plain Jaw Type Caliper		850.00

Available only in Plain Tool Steel

Above prices include fitted wooden cases



"HELIOS" VERNIER CALIPERS WITH KNIFE POINTS

With Fine Adjustment Screw

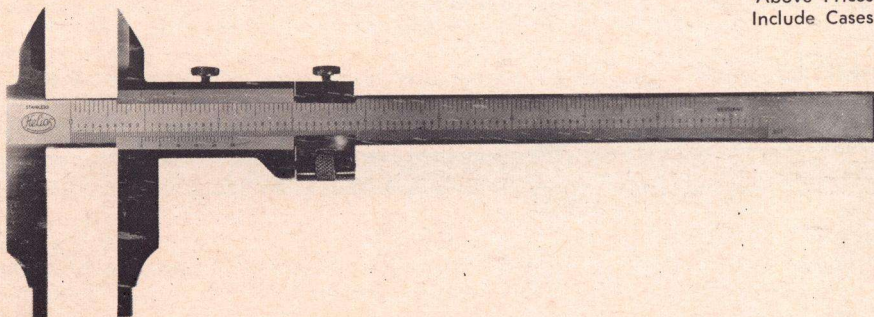
SPECIAL FEATURES

Stainless Steel — Satin Chrome Finish
Outside and inside measurements possible
Micro adjustment screw

Heavy duty construction—hardened throughout
Ground and lapped jaws
Scales read 1/1000" — 1/128"

Code No.	Range	Depth of Jaws	Description	Stainless Steel
				Dull Chromed
52-075-008	0"- 8"	2.5"	Heavy Duty Caliper with Knife Points	\$40.00
52-075-012	0"-12"	3.4"	Heavy Duty Caliper with Knife Points	\$54.00

Above Prices
Include Cases

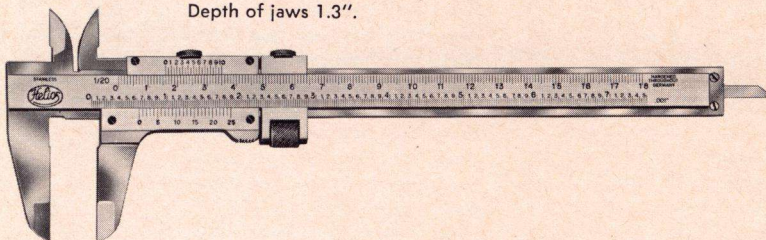


NEW HEAVY DUTY "HELIOS" PARALLEX FREE MASTER VERNIER CALIPERS

SPECIAL FEATURES

Made of hardened steel throughout — satin chromed finish. Verniers are adjustable to compensate for wear. All measuring surfaces ground and lapped for extreme accuracy. Extra long vernier scales reading in .001" and 1/20 millimeter. Flush fitted bar and vernier plates eliminate parallex. Jaws designed for outside, inside, and thread measurements. Has a depth scale which can be read directly from the verniers.

Code No.	Range	Description	Price
52-080-006	0"-6" by .001" 0-18 mm. by 1/20 mm.	Helios Stainless Steel Satin Chromed Parallex Free Vernier Caliper with double set screw for fine adjustment, and adjustable verniers and depth rod. Verniers read in inches and millimeters. Depth of jaws 1.3".	\$33.00 includes leather case

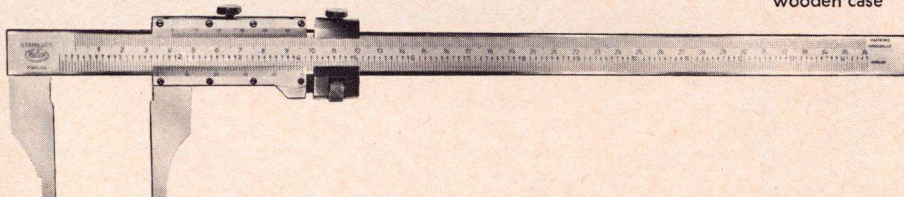


DELUXE TYPE "HELIOS" VERNIER CALIPERS FOR LARGE MEASUREMENTS With Fine Adjustment Screw

SPECIAL FEATURES

Stainless Steel — Satin Chrome Finish	Heavy duty construction—hardened throughout
Vernier adjustable for wear	Ground and lapped jaws
Outside and inside measurements possible	Upper and lower verniers read 1/1000"
Micro adjustment screw	Direct reading on inside measurements

Code No.	Range	Depth of Jaws	Description	Price
52-085-008	0"- 8"	2 3/8"	Deluxe stainless steel vernier caliper with adjustable verniers. Satin chrome finish. Fine adjustment.	\$ 42.50 Price includes leather case
52-085-012	0"-12"	3"	Deluxe stainless steel vernier caliper with adjustable verniers. Satin chrome finish. Fine adjustment.	\$ 66.00 Price includes wooden case
52-085-024	0"-24"	3 9/16"	Deluxe stainless steel vernier caliper with adjustable verniers. Satin chrome finish. Fine adjustment.	\$190.00 Price includes wooden case
52-085-048	0"-48"	5"	Deluxe stainless steel vernier caliper with adjustable verniers. Satin chrome finish. Fine adjustment.	\$440.00 Price includes leather case
52-085-060	0"-60"	5"	Deluxe stainless steel vernier caliper with adjustable verniers. Satin chrome finish. Fine adjustment.	\$610.00 Price includes wooden case
52-085-072	0"-72"	6"	Deluxe stainless steel vernier caliper with adjustable verniers. Satin chrome finish. Fine adjustment.	\$700.00 Price includes wooden case



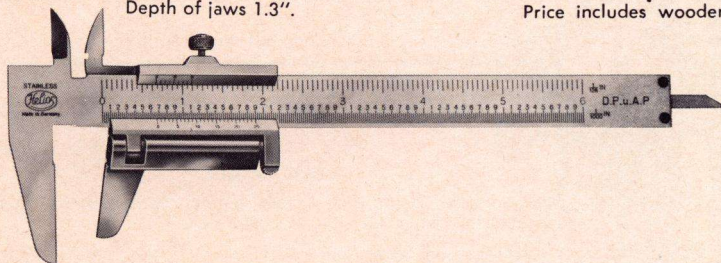
"HELIOS" PRECISION VERNIER CALIPERS WITH SWIVEL JAWS

These Verniers are made to take measurements between two points which are not in the same axis.

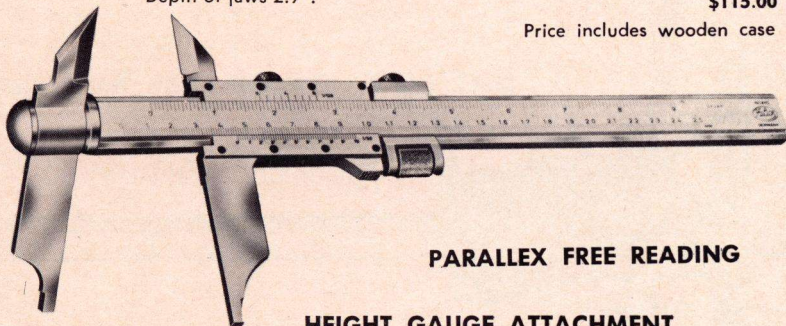
SPECIAL FEATURES

Made of hardened **stainless steel throughout**. All measuring surfaces are ground and lapped for extreme accuracy. Vernier scales of .001" and 1/20 mm. Finished in dull chrome. Extra long vernier to insure accuracy. Jaws designed for outside, inside, and thread measurements.

Code No.	Range	Description	PRICE
52-095-006	0"-6"	Helios swing jaw stainless steel caliper with depth rod. Depth of jaws 1.3".	\$55.00 Price includes wooden case



52-095-008	0"-8"	Helios swing jaw stainless steel caliper of extra heavy construction. Depth of jaws 2.9".	\$115.00 Price includes wooden case
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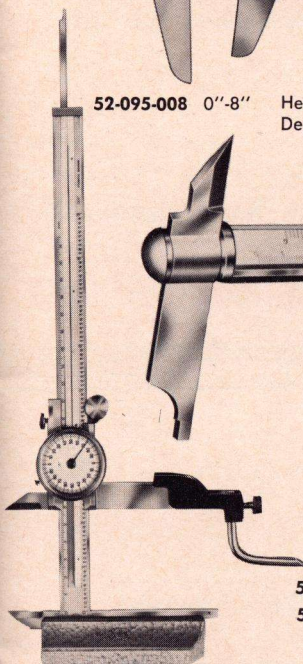


PARALLEL FREE READING

HEIGHT GAUGE ATTACHMENT

An attachment to convert a dial caliper into a height gauge. **All wear surfaces are hardened.** Height Gauge Attachment consists of base, scribe and bracket for attaching scribe to moveable jaw.

52-120-007	Attachment to convert 7" caliper to height gauge	\$8.50
52-120-010	Attachment to convert 10" and 12" caliper to height gauge	\$8.50



"FOWLER" DIAL DEPTH GAUGES

Interchangeable Rod Type — 0"-6" Capacity
For Rapid Direct Reading Measurement of Hole Depths

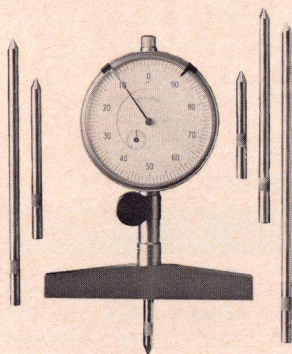
SPECIAL FEATURES

THE DIAL INDICATOR is our heavy duty No. P3416 with 1" travel, graduated in thousandths of an inch.

THE BASE is made of hardened steel, ground and lapped. It has a clamping screw for attaching the Dial Gauge.

THE ROD EXTENSIONS are connected directly to the stem of the Indicator for depths up to 6". The Dial Indicator can be easily adjusted for Zero setting.

Contact points are hardened and precision ground.



Code No.	Range	Description	Price
52-125-006	0"-6" in .001"	1" range Dial Gauge mounted in a 4" hardened steel base with 6 interchangeable rods.	\$30.00 Above price includes fitted wooden case



DIAL DEPTH GAUGE

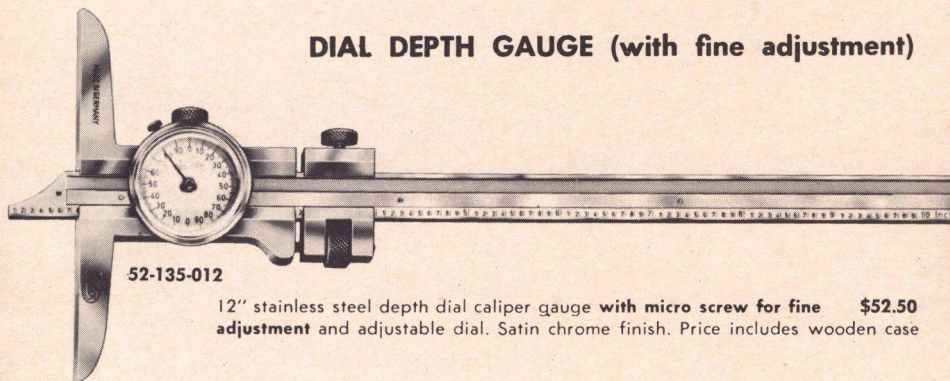
SPECIAL FEATURES

Made of hardened steel. Satin chromed for easy reading.
Large easy to read dial. Adjustable to compensate for wear.
All measuring surfaces are hardened and lapped for extreme accuracy.
Dial reads directly to .001".
Accuracy guaranteed within 1/1000".



Code No.	DESCRIPTION	PRICE
52-125-008	8" stainless steel depth dial caliper gauge. Satin chrome finish. Adjustable dial. Price includes wooden case.	\$36.00
52-125-012	12" stainless steel depth dial caliper gauge. Satin chrome finish. Adjustable dial. Price includes wooden case.	\$47.50

DIAL DEPTH GAUGE (with fine adjustment)

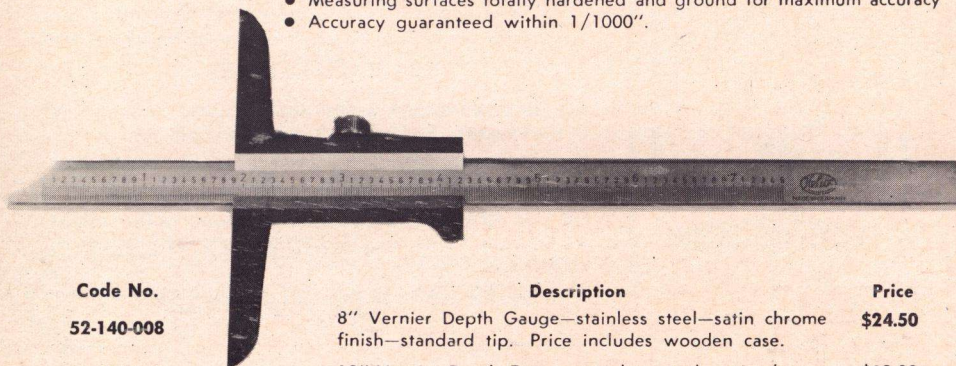


52-135-012

12" stainless steel depth dial caliper gauge with micro screw for fine adjustment and adjustable dial. Satin chrome finish. Price includes wooden case

HELIOS VERNIER DEPTH GAUGE

- Made of hardened chrome steel — satin chrome finish.
- Measuring surfaces totally hardened and ground for maximum accuracy
- Accuracy guaranteed within 1/1000".



Code No.	Description	Price
52-140-008	8" Vernier Depth Gauge—stainless steel—satin chrome finish—standard tip. Price includes wooden case.	\$24.50
52-140-012	12" Vernier Depth Gauge—stainless steel—satin chrome finish—standard tip. Price includes wooden case.	\$32.00

SPECIAL FEATURES

Carefully ground steel base has V-groove for mounting on round work.

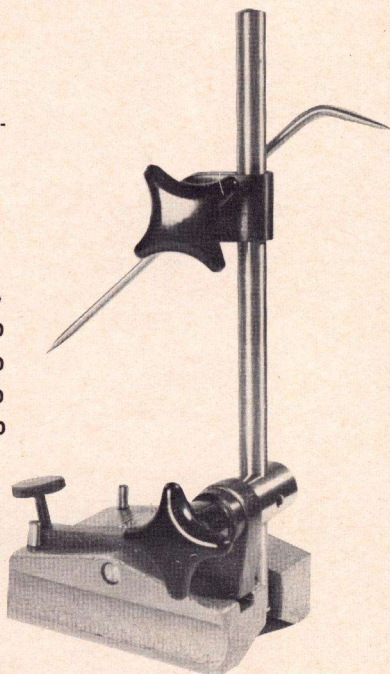
Fine adjustment of spindle to any angle above or below base.

Scriber head has spring control.

Retractable pins in base for work on flat surfaces.

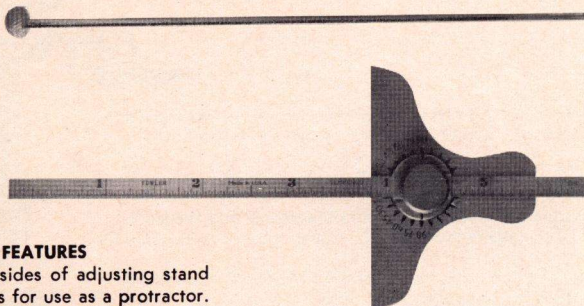
Knurled thumb screw provides fine adjustment for obtaining quick and accurate settings.

Spindle available in 8" and 12" lengths.



Base measures 3 1/2"x2 3/4"x1 1/4"

Code No.	Description	Price
52-155-008	8" Surface Gauge Hardened	\$24.00
52-160-008	8" Surface Gauge Not Hardened	\$20.00
52-155-012	12" Surface Gauge Hardened	\$25.00
52-160-012	12" Surface Gauge Not Hardened	\$21.00

ADJUSTABLE ANGLE DEPTH GAUGE

SPECIAL FEATURES

Head marked on both sides of adjusting stand in 15 degree increments for use as a protractor. Hardened bright polished head. Precision ground base grooved to hold rod 3/32 diameter. Rule held under adjusting nut by spring tempered washer.

Code No.	Description	Price
52-150-005	Depth Gauge with extra rod	\$6.75



DIRECT READING DIAL HEIGHT GAUGES

SPECIAL FEATURES

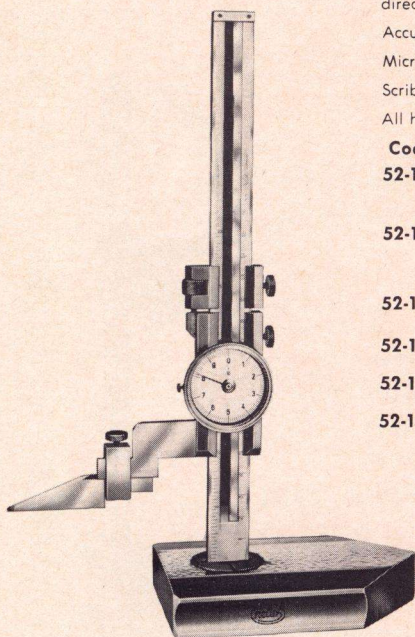
Made of stainless steel. Hardened throughout. Satin chrome finish. Direct reading dial with adjustment for wear. Dial reads directly to .001 inch.

Accuracy guaranteed within .001 inch.

Micro adjustment screw for accurate setting or measuring.

Scriber is carbide tipped.

All height gauges supplied with fine fitted wooden cases.



Code No.	Range	Description	Price
52-165-008	0"-8"	Stainless Steel Dial Height Gauge with adjustable dials.	\$ 95.00
52-165-012	0"-12"	Stainless Steel Dial Height Gauge with adjustable dials.	\$145.00
52-165-018	0"-18"	Same	\$205.00
52-165-024	0"-24"	Same	\$275.00
52-165-036	0"-36"	Same	\$450.00
52-165-048	0"-48"	Same	\$675.00

Prices
includes
fitted
wooden
cases

DIRECT READING DIAL HEIGHT GAUGES WITH ADJUSTABLE COLUMN

SPECIAL FEATURES

These height gauges can be used as regular height gauges of extra large range, and also are adaptable to be made into Optical Cathetometers as described on page 66g of our catalog.

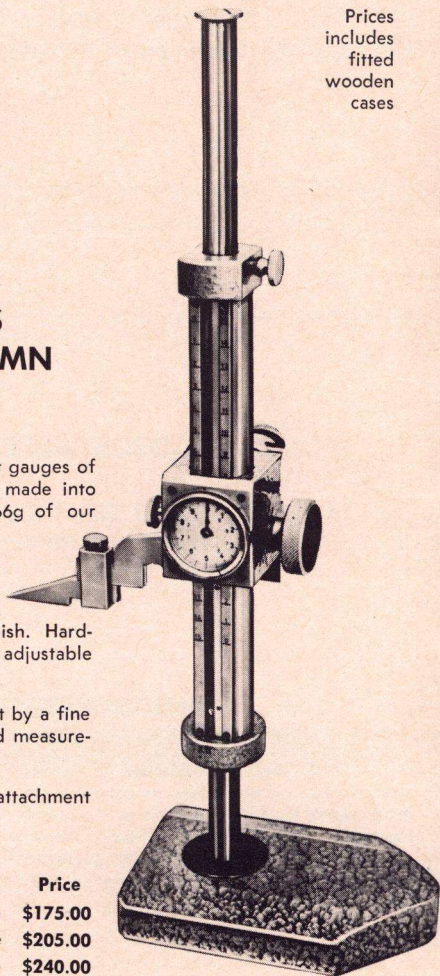
They are made of stainless steel, satin chrome finish. Hardened throughout. Scriber is carbide tipped. Dial is adjustable for wear.

The dial is adjustable in its up and down movement by a fine gear and pinion so that most accurate settings and measurements can be made.

An additional extra long scriber and also a depth attachment is supplied with each unit.

Code No.	Range	Description	Price
52-165-020	0"-20"	Adjustable scale Height Gauge	\$175.00
52-165-030	0"-30"	Adjustable scale Height Gauge	\$205.00
52-165-040	0"-40"	Adjustable scale Height Gauge	\$240.00

Prices include fitted wooden case





PRECISION VERNIER HEIGHT GAUGES

SPECIAL FEATURES

These height gauges are fine precision tools constructed to meet the most exacting demands of the tool room and inspection work. Extra large Vernier Scale is provided. The column and base are extra heavy to insure stability.

The beam and measuring parts are made of stainless steel.

The base and measuring surfaces are hardened, ground, and lapped for extreme accuracy. The base is ground perpendicular to the beam.

Bases are extra heavy to insure stability. The 24", 36" and 48" gauges are proportionally larger in all components, not merely of greater height — this makes for extra rigidity and accuracy.

Dial indicators can be used in place of the scribe.

Beams are made of extra heavy bar steel to insure extreme rigidity.

Every moveable part is fitted to extreme limits, so that all play is eliminated.

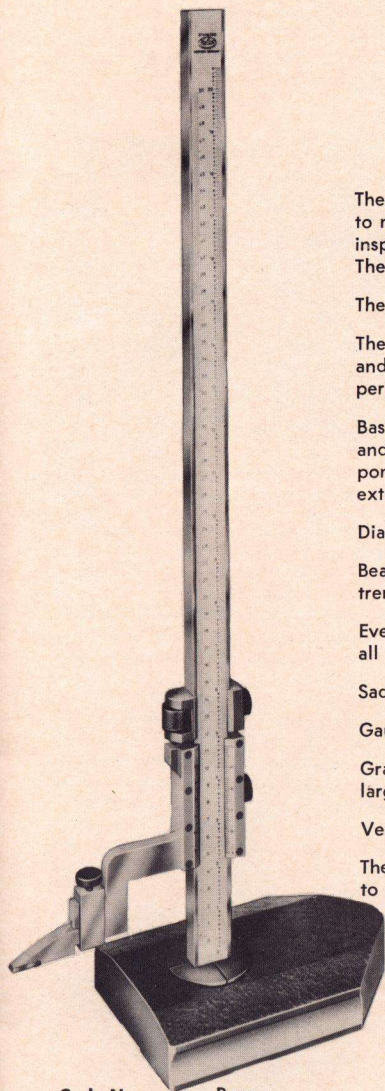
Saddle is accurately fitted.

Gauges are finished in dull chrome.

Graduations are clean cut to insure easy reading. Extra large verniers are supplied.

Verniers are adjustable for wear.

The scribe has carbide tips, and is made with a "V" way to eliminate lateral play.



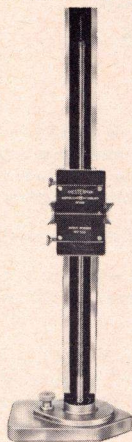
SIZES AND PRICES

Code No.	Range	Description	Price
52-170-009	0"-9"	Stainless steel height gauge. Satin chromed.	\$69.50
52-170-012	0"-12" 0-300mm	Stainless steel height gauge. Satin chromed.	\$99.50
52-170-018	0"-18" 0-450mm	Stainless steel height gauge. Satin chromed.	\$160.00
52-170-024	0"-24" 0-600mm	Stainless steel height gauge. Satin chromed.	\$198.00
52-170-036	0"-36" 0-900mm	Stainless steel height gauge. Satin chromed.	\$325.00
52-170-048	0"-48" 0-1200mm	Stainless steel height gauge. Satin chromed.	\$450.00
Prices include fitted wooden cases.			
52-170-080	0"-80" 0-200mm	Tool steel height gauge. Satin chromed. Extra heavy construction.	\$1000.00
Packed in plain wooden case.			

THE IMPROVED CHESTERMAN HEIGHT GAUGE

The ideal means of transferring measurement with **ELECTRONIC** instruments —

Used in conjunction with the "FOWLER HEIGHT TRANSFER MICROMETER" — the utmost in accuracy and critical adjustment can be achieved.

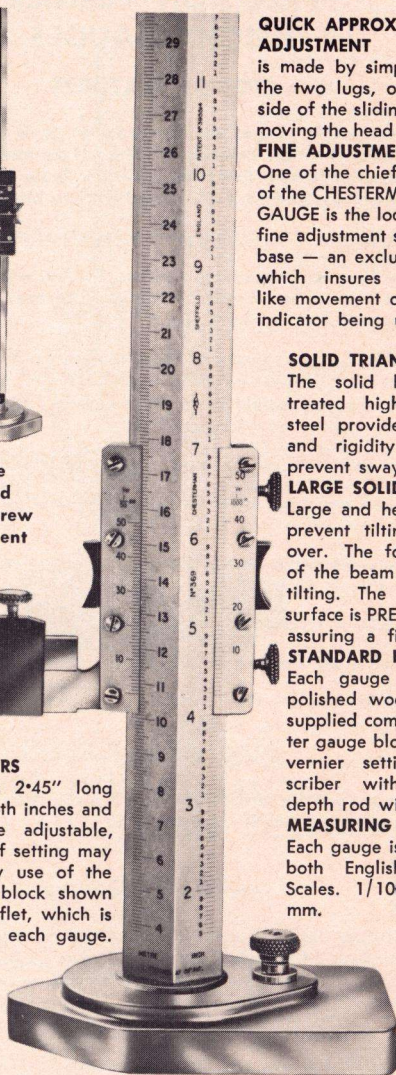


Acme
Thread
Micro-Screw
Movement



LARGE VERNIERS

The vernier is 2.45" long. Verniers for both inches and millimetres are adjustable, and accuracy of setting may be checked by use of the master gauge block shown on back of leaflet, which is furnished with each gauge.



QUICK APPROXIMATE ADJUSTMENT

is made by simply pressing the two lugs, one on each side of the sliding head, and moving the head up or down.

FINE ADJUSTMENT

One of the chief advantages of the CHESTERMAN HEIGHT GAUGE is the location of the fine adjustment screw in the base — an exclusive feature which insures micrometer-like movement of scriber or indicator being used.

SOLID TRIANGULAR BEAM

The solid beam of heat treated high quality tool steel provides the strength and rigidity necessary to prevent sway and vibration.

LARGE SOLID BASE

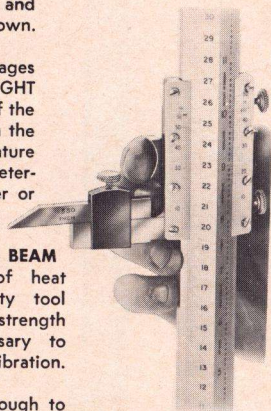
Large and heavy enough to prevent tilting or toppling over. The forward position of the beam helps to avoid tilting. The bottom contact surface is PRECISION LAPPED assuring a firm foundation.

STANDARD EQUIPMENT

Each gauge is fitted in a polished wood case and is supplied complete with master gauge block for checking vernier settings, hardened scriber with clamp, and depth rod with clamp.

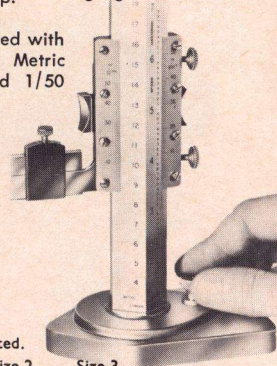
MEASURING SCALES

Each gauge is provided with both English and Metric Scales. 1/1000" and 1/50 mm.



FINE ADJUSTMENT

is made by turning the knurled head screw located in the base, an exclusive CHESTERMAN feature. When turning this screw, the downward pressure steadies the gauge and prevents tipping. There is no need to hold the gauge.



HIGHEST QUALITY THROUGHOUT

Developed from their original and unique design by James Chesterman & Co. Ltd., the century-old master tool makers, of Sheffield, England, this gauge is acclaimed the world over for its unrivalled standard of accuracy and finish. The gauge is heat treated throughout and is now hard chrome plated up to the 24" size. The 40" and 48" sizes are ground all over to instrument finish.

SPECIFICATIONS

Measuring Capacity.

Instrument hard chrome plated.

	Size 1	Size 2	Size 3
English Scale	1½" to 12"	2" to 18"	2" to 24"
Metric Scale	40-310 mm	50-470 mm	50-620 mm

Ground all over to instrument finish.

	Size 4	Size 5
English Scale	3" to 40"	3" to 48"
Metric Scale	75-1010 mm	75-1220 mm

PRICE

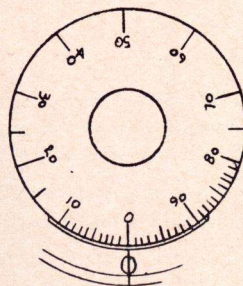
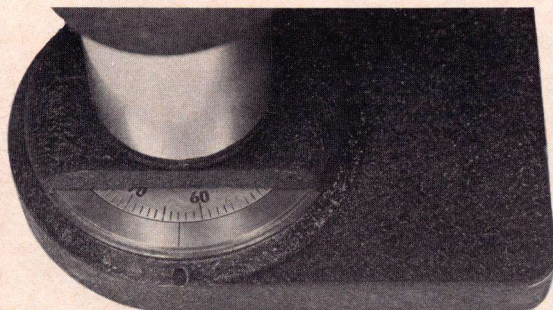
Reading to 1/1000" 1/50 mm

Code No.	52-175-012	52-175-018	52-175-024	52-175-040	52-175-048
Size	12"	18"	24"	40" 1 Metre	48"
Price	\$185.00	\$345.00	\$420.00	\$800.00	\$985.00

Fowler

THE "INSTANT" SPACE AGE HEIGHT GAUGE

**SPLIT SECOND MEASUREMENTS IN THOUSANDTHS
CUT SETTING TIME BY 85%**



SPECIAL FEATURES

Designed to meet the specific demands of the machinist and toolmaker in laying out small work from the faceplate surface. Eliminates all optical reading errors of a vernier by the use of a highly accurate micrometer which can be set and locked to the desired dimension. It is highly accurate "check gauge" for setting dial indicators and other gauges.



All measuring surfaces are hardened, ground and lapped to a "gauge block" finish. Super accuracy and trouble free operation are insured by the specially designed movement of the micrometer shaft which turns freely on a specially designed ball bearing race. Backlash is eliminated by a special thrust bearing.

To operate the unit — **QUICK APPROXIMATE ADJUSTMENT** is made by simply pressing the lug in the back of the unit and moving the saddle up or down to the desired "tenth" inch where it locks itself in by releasing the lug.

FINE ADJUSTMENT is then made by turning the micrometer thimble (on top of the unit) one-half circle in a clockwise or counter-clockwise direction to the desired 1/1000" inch increment on the large dial on the bottom of the Gauge.

GAUGE COMES EQUIPPED with a combination carbide scriber and dial indicator holder. By turning this scriber upside down, the capacity of the unit is increased by "two whole inches."

SPECIFICATIONS

Code No.	Range	Description	Price
52-180-006	0"-6" by 0.001"	6" capacity Dull Chromed Toolmakers Height Gauge with Carbide Combination Scriber.	\$98.00
52-180-012	0"-12" by 0.001"	12" capacity Dull Chromed Toolmakers Height Gauge with Carbide Combination Scriber. Prices include fitted velvet case	\$160.00

Announcing The New High Precision

Fowler

HEIGHT TRANSFER MICROMETER

**WITH THE NON-ROTATING COLUMN FOR EXTREME ACCURACY
ON HEIGHT SETTING AND MEASURING**

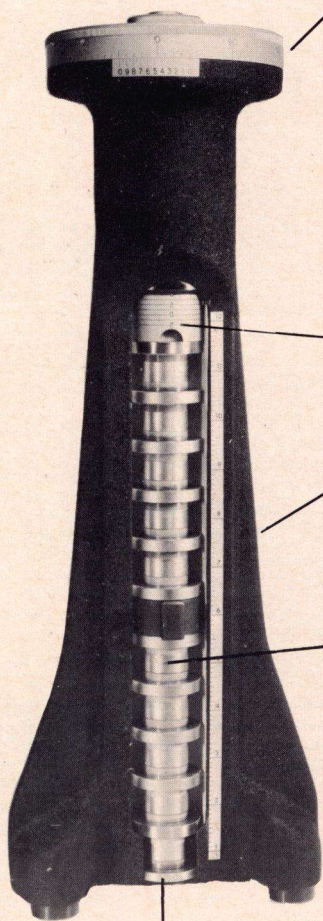
GENERAL FEATURES

The Simplicity of measuring and transferring measurements with the "Fowler Height Transfer Micrometer" is such that measurements can be made in minutes, where it took hours when measurements were made from gauge blocks or other methods.

Inspection of holes, layout work, checking height gauges, etc., becomes a matter of merely turning the head to the desired measurement. Extensive calculations and errors are thus eliminated.

By using the available riser blocks (described on next page), heights up to 36" can be obtained.

The extra weight of the unit insures stability and freedom from vibration.



THE MICROMETER HEAD measures $4\frac{3}{4}$ " in diameter and has very wide divisions reading in "ten thousandths" of an inch. Each division can be again divided to "five millionths" by interpolating the ten thousandths readings to a very large vernier.

The head can be set for the zero marking of the vernier by simply loosening a screw on the top of the HEAD which allows the MICROMETER HEAD to turn in relation to the column. Once this is set, all measurements can be referred to this zero setting with extreme ease and accuracy.

The head is finished in satin chrome.

A READ OUT column with divisions to one-tenth of an inch is directly under the MICROMETER HEAD and automatically resolves the measured height to a "tenth of an inch" within each inch of measurement, thus simplifying reading of the instrument and eliminating errors.

THE HOUSING

The housing is an extra heavy semi-steel casting, which has been specially heat-treated to insure stability.

The base has three flat carbide feet which have been ground and lapped for extreme accuracy.

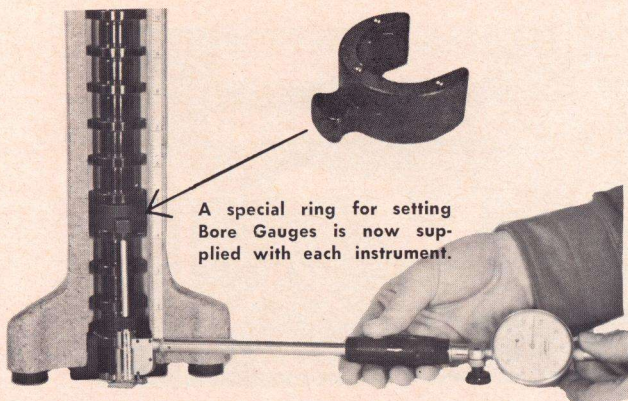
THE MEASURING COLUMN

The measuring column is a hardened steel bar ground to gauge block accuracy. It is mounted in a carrier that has an up and down movement of 1.1" plus, thus insuring a range of up and down movement of one full inch. The height of the blocks are alternately of .250" for the measuring block and .750" for the spacing block, so that the distance from the bottom of one measuring block to the bottom of the next is exactly 1" and from the top of one to the top of the next is also 1" over the entire 12" range. **THE COLUMN IS NON-ROTATING.**

THE BOTTOM BLOCK is .2" thick which coincides with the bottom reading on the Micrometer scale. It is recommended that the Micrometer will be initially zeroed by setting this .2" Block against a .2" Gauge Block and that the Micrometer Head is zeroed to the vernier. From then on all readings can be directly referred to the Micrometer Head.

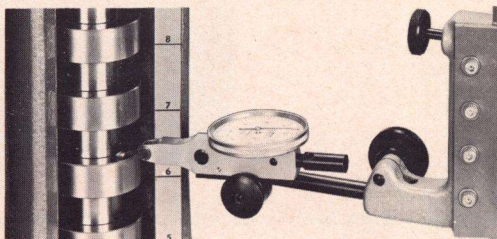
Details of Construction and Operation of

Fowler HEIGHT TRANSFER MICROMETER

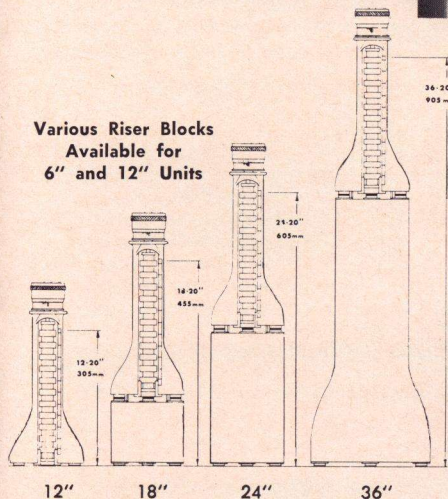


Setting a Bore Gauge

Transferring
Height Measurements
by means of a
Dial Indicator



Various Riser Blocks
Available for
6" and 12" Units



SPECIFICATIONS

ACCURACY—"A" Grade 6" instruments have an overall accuracy of .00005" (50 millionths) over 6" range.

"A" Grade 12" instruments have an overall accuracy of .00005" (50 millionths) over 12" range.

"B" Grade 12" instruments have an overall accuracy of .0001" (100 millionths) over 12" range.
PARALLELISM over entire land .000050".

LEAD SCREW accuracy — .00005" over full inch.

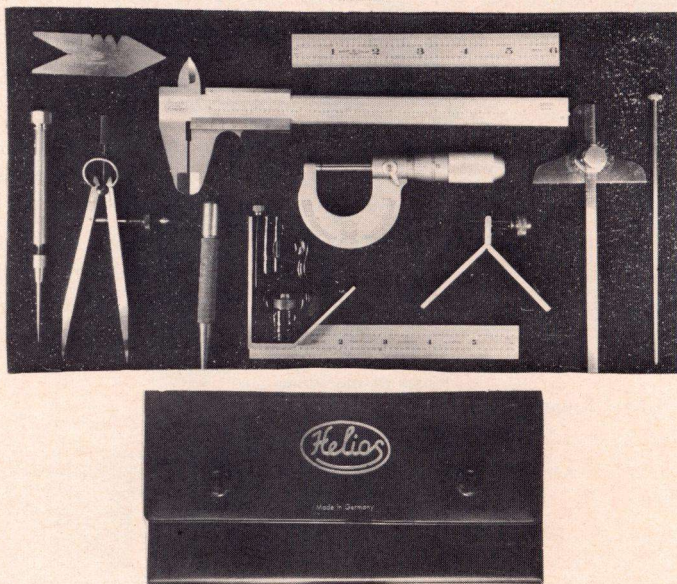
MINIMUM READING of Micrometer Head .0001".

MINIMUM READING at vernier — .000005".

MINIMUM READING at column read out .1". Micrometer Head diameter 4.76".

Code No.	Range	Description	Price Including Fitted Case
52-185-006	0"- 6"	"Height Transfer Micrometer" "INSPECTION GRADE" with guaranteed accuracy within 50 millionths.	\$280.00
52-185-012	0"-12"	"Height Transfer Micrometer" "INSPECTION GRADE" with guaranteed accuracy within 50 millionths.	\$540.00
52-190-012	0"-12"	"Height Transfer Micrometer" "WORKSHOP GRADE" with guaranteed accuracy within 100 millionths (.0001).	\$385.00
52-195-006	6"	RISER BLOCK increases working height of Micrometer to 18"	\$125.00
52-195-012	12"	RISER BLOCK increases working height of Micrometer to 24"	\$175.00
52-195-024	24"	RISER BLOCK increases working height of Micrometer to 36"	\$305.00
52-195-006	6"	RISER BLOCK for 6" H.T. Micrometer increases height to 12"	\$125.00

Fowler BASIC SET OF TOOLS
For Students and Apprentices

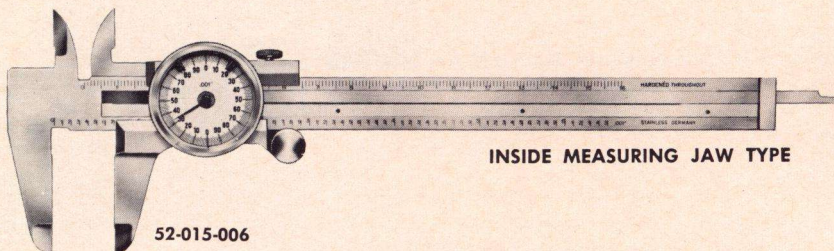


These sets are ideal for beginners in school shops and apprentice training programs. They comprise the tools that are most universally used and they are of the same high quality as other "FOWLER" tools so that the young mechanic can continue to build his "Tool Chest" without having to replace or discard any of these tools.

STUDENT KIT NO. 1

- | | |
|---|-------------------------------------|
| 1 52-380-006 Combination Square with center head | 1 52-505-001 Center Gauge |
| 1 52-235-001 Deluxe Helios Micrometer in tenths (0"-1") | 1 52-500-015 Center Punch |
| 1 52-330-006 Ruler | 1 52-060-006 Helios Vernier Caliper |
| 1 52-515-005 Scriber | 1 52-115-004 Spring Divider |
| | 1 52-150-005 Depth Gauge |
| | 1 52-200-015 Case for above |

The basic set is also offered with our **Dial Caliper** at a special price so that the young mechanic can become acquainted with this, the most useful addition to the machinists tool line in the last fifty years.



INSIDE MEASURING JAW TYPE

Code No.	Description	Price
52-200-005	Fowler Basic Set for Students and Apprentices. 9 Basic tools packed in a specially fitted case. (Above tools regularly priced at \$75.00.)	\$60.00
52-200-010	Same Basic Set as above with 1 52-015-006 Dial Caliper instead of 52-060-006 Plain Vernier Caliper. 52-015-006 is similar to our 52-010-006 but without Thumb Roll.	\$75.00



MICROMETERS OF PRECISION



HIGH PRECISION MICROMETER HEADS

SPECIAL FEATURES

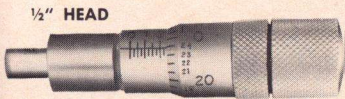
Lasting accuracy is assured as all micrometer heads are furnished with spindles **hardened throughout** and the screw thread is cut from the solid **by precision grinding and lapping**, after the spindle has been hardened.

All measuring surfaces are precision lapped to a high lustre **Plano-Parallel Finish**.

Adjustments for wear can be made instantly.

Black graduations on **"Satin Chrome Finish"** insure easy reading.

Large mounting surfaces, to standard specifications are furnished on all heads to insure ease of mounting on machines or fixtures.



1/2" HEAD

Code No.

RANGE

DESCRIPTION

52-210-005 0—1/2" by .001"

Satin chrome finish without lock—Vernier or ratchet—without carbide.

\$9.50

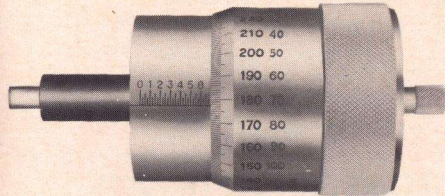


1" HEAVY DUTY HEAD

52-210-010 0—1" by .001"

Satin chrome finish. Extra large, easy to read Vernier.

\$12.00



TEN THOUSANDTH DIRECT READING HEAD

52-210-015

0—1" by .0001"

Extra large ten thousandth direct reading head. Satin chrome finish.

Large Diameter Drum 2"; suitable for electronic, optical equipment, or machine tools where extra fine adjustment is desired.

Dual system of graduation, black—in one direction and red on opposite direction, for quick reading as micrometer screw is advanced or withdrawn.

\$44.00

Price includes fitted case

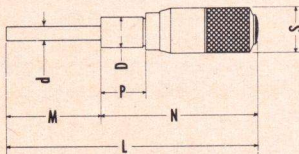


TEN THOUSANDTH 2" CAPACITY

52-210-020 0—2" by .0001"

Satin chrome finish without lock—Easy to read Vernier. Has friction thimble and speeder.

\$36.00



Code	L	M	N	S	d	P	D	Graduation
52-210-005	2.745	.58	2.42	.600	.200	.375	.375	.001
52-210-010	4.038	1.05	2.80	.630	.250	.800	.375	.0001
52-210-015	4.60	1.05	3.55	2.0	.25	1.0	.5	.0001
52-210-020	6.50	2.05	3.8	.80	.275	.600	.5	.0001

Above Dimensions in effect when Micro Head is set at Zero
Above Dimensions in Inches

"FOWLER" MICROMETER SETS

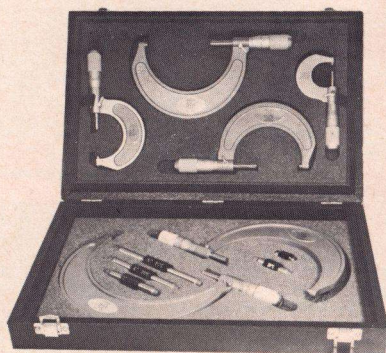
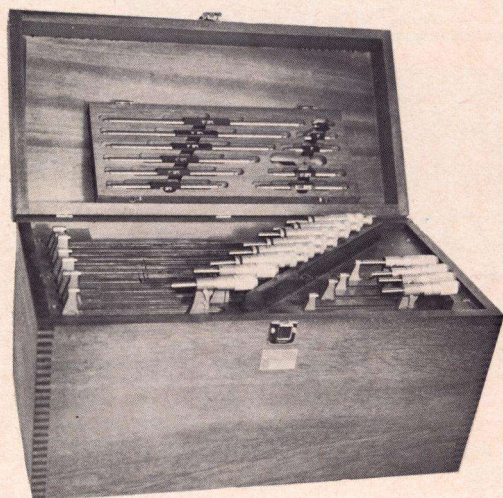
Code No.

ALL WITH CARBIDE MEASURING SURFACES

52-215-004	Deluxe 0"-4" Helios Micrometer Set, consisting of 4 micrometers Code 52-235-001 and 002 plus 52-240-003 and 004.	\$ 90.00
52-215-006	Deluxe 0"-6" Helios Micrometer Set, consisting of 6 micrometers Code 52-235-001 and 002 plus 52-240-003 through 006.	\$150.00
52-215-012	Deluxe 0"-12" Helios Micrometer Set, consisting of 12 micrometers Code 52-235-001 and 002 plus 52-240-003 through 012.	\$375.00

Prices Include Standards But Not Cases

Refer to page 19g for description of individual micrometers.



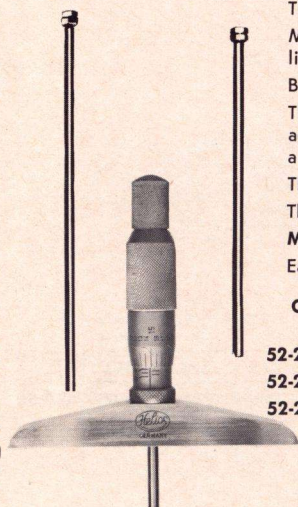
DELUXE FITTED WOODEN CASES FOR MICROMETERS

Code ARE AVAILABLE AS FOLLOWS:
No.

52-220-004	Holds 4 Micrometers and Standards for Set No. 52-215-004	\$ 7.50
52-220-006	Holds 6 Micrometers and Standards for Set No. 52-215-006	\$ 9.00
52-220-012	Holds 12 Micrometers and Standards for Set No. 52-215-012	\$35.00

"HELIOS" PRECISION MICROMETER DEPTH SETS

SPECIAL FEATURES



These Micrometers are dull chromed finish.

Measuring tops are bright hard chrome finish, and therefore not liable to wear.

Bottom surfaces of base are hardened.

The interchangeable rods are fitted to the Micrometer spindle against a positive stop and locked. This setting is carried out on a surface plate, using gauge blocks.

The rods are hardened ground and lapped.

Threads are hardened ground and lapped for accuracy.

Micrometers are equipped with friction thimble.

Each instrument is packed in a fitted wooden case.

Code No.	Range in Thousandths	Description	Price
52-225-005	0"-3"	Depth Micrometer with 2 3/4" base	\$29.00
52-225-010	0"-3"	Depth Micrometer with 4" base	\$32.00
52-225-015	0"-6"	Depth Micrometer with 4" base	\$37.50

Prices include fitted wooden case.

Note: Extra 4", 5" and 6" Rods available at \$3.00 each.

"HELIOS - FOWLER"

FORGED FRAME OUTSIDE MICROMETER

ALL WITH CARBIDE MEASURING SURFACES

SPECIAL FEATURES

These are high-grade Micrometers made to the highest standards.

Anvil and spindle are made of special Swedish micrometer steel and hardened, ground, and lapped for extra accuracy. Accuracy is maintained at .00005"—Parallelism to .00005".

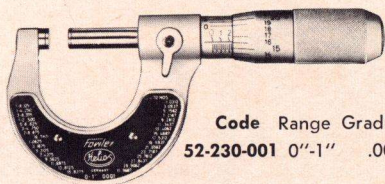
The measuring surfaces are carbide.

Thimble and barrel are finished in dull chrome to insure ease in reading graduations.

Micrometers are equipped with positive locking clamp, adjustable nut and friction thimble. Carbide tipped.

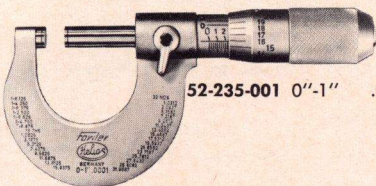
Slanted markings at each .100" for error free reading.

WITH INSULATED FRAME



Code	Range	Graduations	Description	Price of	Price of
				Micrometer	fitted wooden case
52-230-001	0"-1"	.0001"	Insulated forged frame Micrometer with positive locking clamp, adjustable nut and friction thimble. Carbide tipped.	\$22.50	\$1.75
52-230-002	1"-2"	.0001"	SAME AS ABOVE	\$25.00	\$2.25

Above price includes standard on 52-230-002 only.

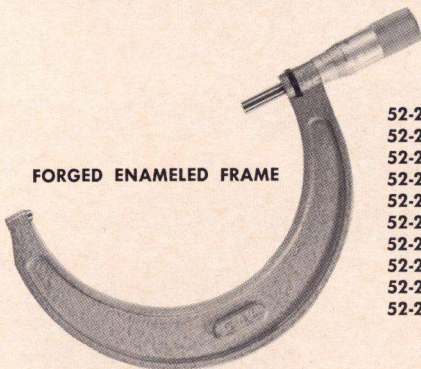


52-235-001	0"-1"	.0001"	All chromed forged frame Micrometer with positive locking clamp, adjustable nut and friction thimble. Carbide tipped.	\$17.50	\$1.75
52-235-002	1"-2"	.0001"	SAME AS ABOVE	\$21.00	\$2.25

FORGED FRAME ALL CHROME

Above price includes standard on 52-235-002 only.

Note — Leather cases supplied on all 1" and 2" Micrometers at no extra cost.



FORGED ENAMELED FRAME

HX Micrometers have forged frames, enamel finish, thimble and barrel fully chromed, locking clamp, adjustable nut and friction thimble.

The measuring surfaces are carbide.

52-240-003	2"-3"	.0001"	\$24.00	\$2.50
52-240-004	3"-4"	.0001"	\$26.00	\$2.75
52-240-005	4"-5"	.0001"	\$30.00	\$3.50
52-240-006	5"-6"	.0001"	\$32.00	\$3.75
52-240-007	6"-7"	.0001"	\$35.00	\$4.50
52-240-008	7"-8"	.0001"	\$37.50	\$5.50
52-240-009	8"-9"	.0001"	\$40.00	\$6.50
52-240-010	9"-10"	.0001"	\$43.00	\$7.00
52-240-011	10"-11"	.0001"	\$45.00	\$8.50
52-240-012	11"-12"	.0001"	\$47.00	\$10.50

Above prices include standards.

Micrometers can also be supplied in sets.

See opposite page.

NOTE: For Sets and Cases see opposite page



INDICATING MICROMETER (COMPARATORS)

This instrument can be used as a highly accurate micrometer, as a comparator, as a "go" and "no go" gauge and can also take the place of snap gauges on limited runs.

SPECIAL FEATURES

This Micrometer has an indicating accuracy to .00008". Parallelism of faces to .000025". Spindle and thread are hardened, ground and lapped.

The measuring surfaces are made of carbide. Graduations are clean cut on satin chrome to insure easy accurate reading.

Pinion and gear are hardened.

The anvil withdraws 2 mm. to insert or extract the object being measured.

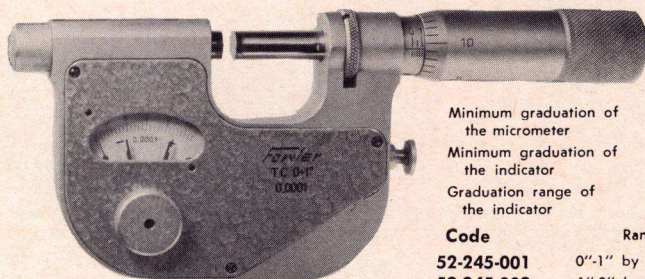
Uniform pressure is exerted at all times.

After setting the micrometer spindle can be locked.

Tolerance hands can be set for desired limits.

Indicator has a range of .0010 in.

Prices include fitted wooden cases.



MEASURING RANGE AND ACCURACY

	Metric	Inch
Minimum graduation of the micrometer	0.01 mm.	0.001 in.
Minimum graduation of the indicator	0.002 mm.	0.0001 in.
Graduation range of the indicator	+0.02 mm.	+0.0011 in.

Code	Range	PRICE
52-245-001	0"-1" by 0.0001	\$ 85.00
52-245-002	1"-2" by 0.0001	\$100.00

Prices include fitted wooden cases.



"HELIOS" UNIVERSAL MICROMETER STAND

A heavy micrometer stand, made of cast iron that can be adjusted to any position.

The jaws are equipped with insulating plates so as to avoid damage to the instrument being clamped.

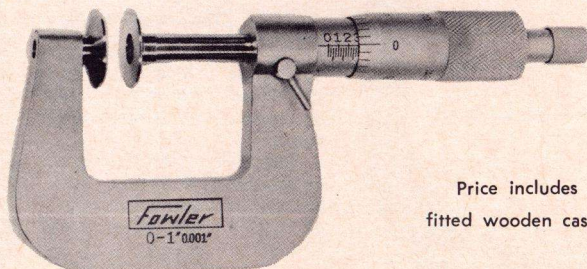
Code	Description	Price
52-247-000	Micrometer Stand	\$17.50



DISC OR FLANGE MICROMETER

This Micrometer has disc-type measuring surfaces for measuring distances between grooves and between teeth of straight and helical gears. It is also used to measure thickness of gear teeth and many other purposes.

Discs are .709 in. in diameter and are plano parallel lapped.



Price includes fitted wooden case.

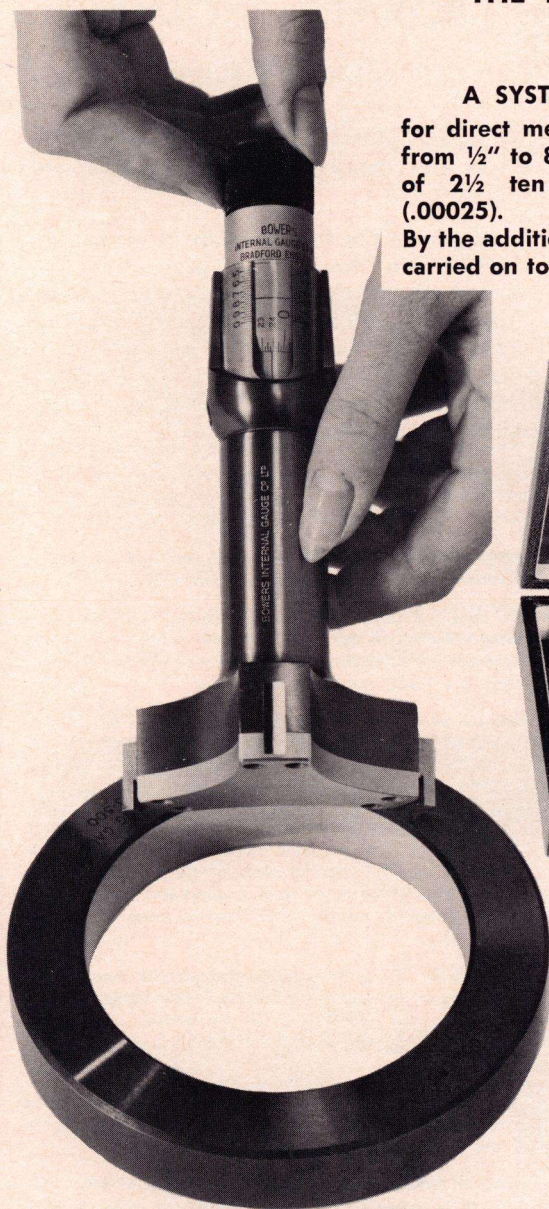
Code	Description	Price
52-250-001	0"-1" capacity Disc Micrometer	\$32.00
52-250-002	1"-2" capacity Disc Micrometer	\$35.00

THE FOWLER-BOWERS "HOLMIKE"

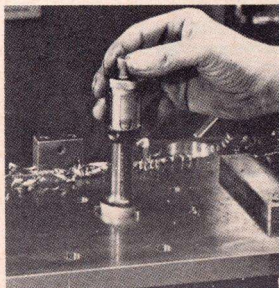
A SYSTEM OF MICROMETERS

for direct measuring of holes and bores from $\frac{1}{2}$ " to 8" in diameter in increments of $2\frac{1}{2}$ ten thousandths of an inch (.00025).

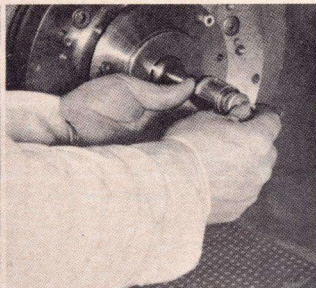
By the addition of rods, measuring can be carried on to any desired depth.



The velvet lined box and setting gauge shown in the illustration are included in the price of the micrometer.



JIG BORING



INTERNAL GRINDING



IN A LATHE

THE **Fowler** -BOWERS "HOLMIKE"

Special Features

"HOLMIKE" reads directly thus eliminating errors and insuring accuracy — quicker and easier.

To eliminate the human error in measuring, the $2\frac{1}{2}$ ten thousandths graduations are carried on the sleeve of the thimble of the "HOLMIKE" and are read against a reference mark on the transparent outer sleeve, thus insuring maximum accuracy and readability. This outer sleeve also protects the instrument from dirt and grit.

The anvils of "HOLMIKE" come flush with the face of the instrument so that measurements to the bottom of "blind" holes can be easily made.

The anvils of "HOLMIKE" move in and out against an expanding cone, thus insuring positive action.

The sensitive ratchet stop of "HOLMIKE" eliminates the guess work in measuring. The same amount of expanding pressure is achieved by all operators so that measurements are 100% accurate at all times.

Because of its special patented construction where two sets of anvils can be used with each "HOLMIKE", only 11 "HOLMIKES" are necessary to cover the range of sizes from $\frac{1}{2}$ " to 8"; thus the cost of "HOLMIKE" is lower than other similar tools on the market.

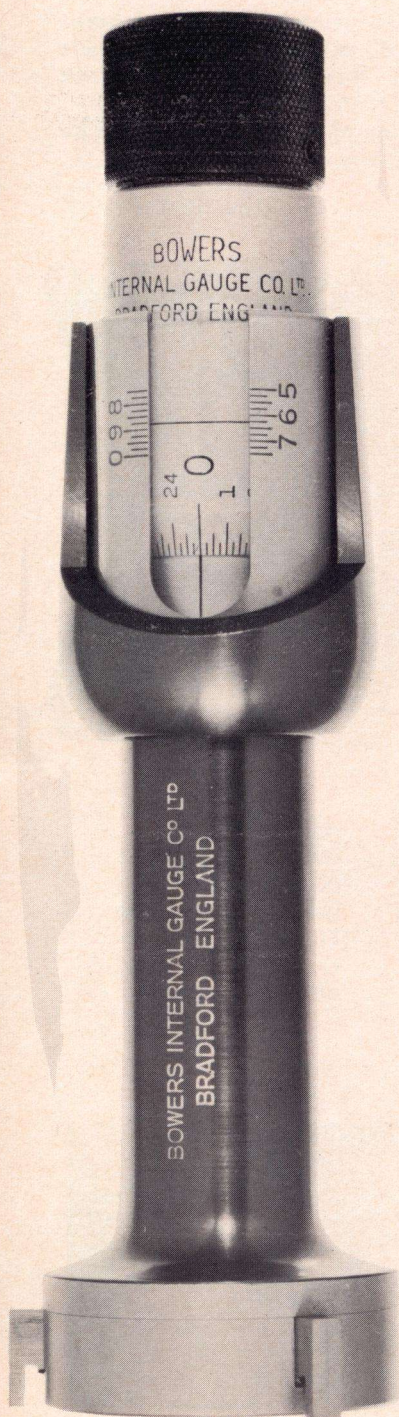
The "HOLMIKE" Micrometer screw, the expanding cone, the anvils, and all moving parts of the "HOLMIKE" are made of special hardened steel, ground and lapped to the highest possible accuracy, thus insuring years of satisfactory service.

"HOLMIKES" 2" or over are furnished with two sets of anvils, each set covering one-half the range of the Micrometer. No resetting of the Micrometer is necessary when changing jaws. Instructions for changing anvils are included.

Each "HOLMIKE" is also supplied with a hardened and ground setting ring gauge. This is included in the price of the Micrometer.

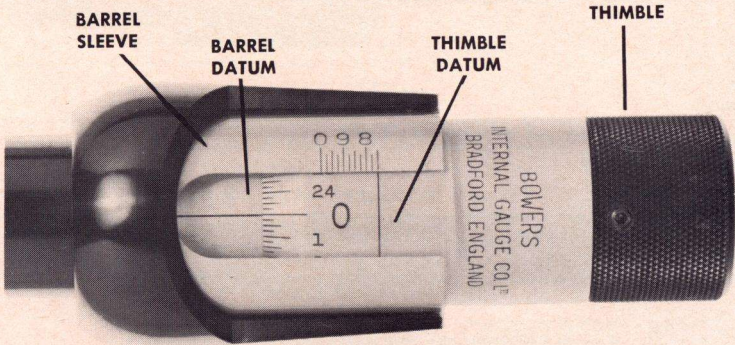
Standard "HOLMIKES" measure to a depth of $2\frac{1}{2}$ ". Six inch (6") extensions can be added to the standard "HOLMIKE" so that the length can be increased indefinitely in multiples of 6", thus insuring measurement to any depth of hole that is necessary to reach.

The thimble of the "HOLMIKE" is finished in dull chrome and the rest of the "HOLMIKE" is anodized in black which gives it a permanent beautiful appearance. Each unit is packed in a velvet lined case together with ring gauge standard.



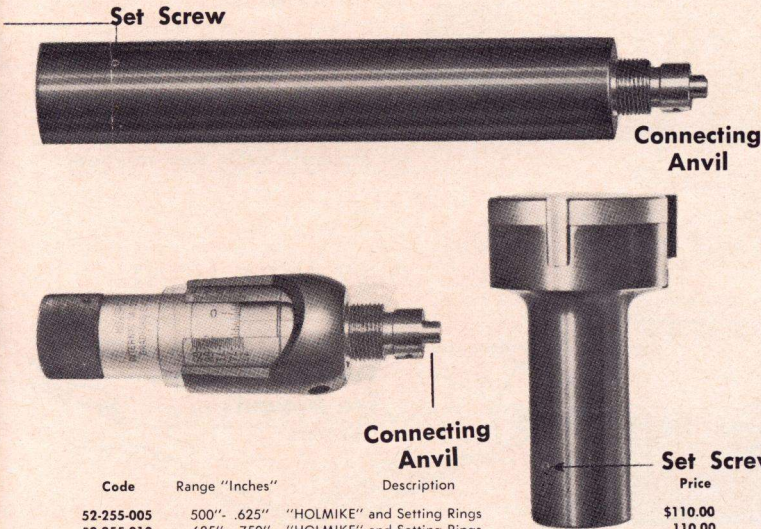
METHOD OF READING "HOLMIKE"

In an attempt to eliminate the human error, the "HOLMIKE" models incorporate an entirely new method of reading. An outer sleeve has been added which carries the graduations which in other Micrometers are situated on the barrel. To facilitate easier reading a datum line has also been added to the thimble, this being used to read off against the graduations on the barrel sleeve. The thimble is graduated in .00025" readings (on the metric model .005mm) and can be relied upon to measure accurately within these tolerances.



EXTENSIONS FOR DEEP BORE READINGS

The standard model will measure to a depth of 2 1/2" but extension pieces are supplied, at extra cost, in 6" lengths, thus enabling an operator to take readings in deep bores. One or more extensions can be used to reach into any depth.



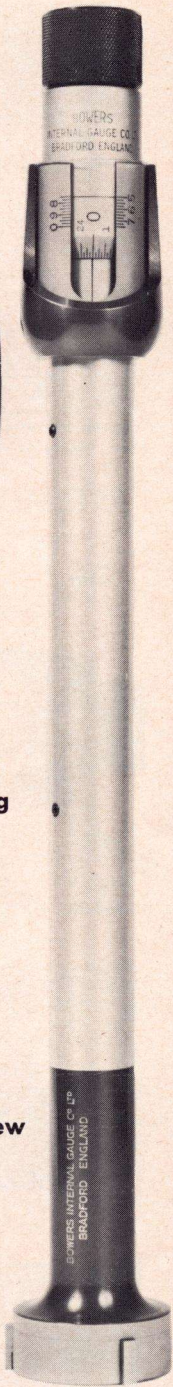
Code	Range "Inches"	Description	Price
52-255-005	500"- .625"	"HOLMIKE" and Setting Rings	\$110.00
52-255-010	.625"- .750"	"HOLMIKE" and Setting Rings	110.00
52-255-015	.750"-1.000"	"HOLMIKE" and Setting Rings	120.00
52-255-020	1.000"-1.500"	"HOLMIKE" with 2 sets of anvils and Settings Rings	130.00
52-255-022	1.500"-2.000"	"HOLMIKE" with 2 sets of anvils and Settings Rings	140.00
52-255-025	2.000"-3.000"	"HOLMIKE" with 2 sets of anvils and Settings Rings	165.00
52-255-027	3.000"-4.000"	"HOLMIKE" with 2 sets of anvils and Settings Rings	220.00
52-255-030	4.000"-5.000"	"HOLMIKE" with 2 sets of anvils and Settings Rings	310.00
52-255-035	5.000"-6.000"	"HOLMIKE" with 2 sets of anvils and Settings Rings	345.00
52-255-040	6.000"-7.000"	"HOLMIKE" with 2 sets of anvils and Settings Rings	410.00
52-255-045	7.000"-8.000"	"HOLMIKE" with 2 sets of anvils and Settings Rings	435.00
Above prices include Velvet Lined Case			
52-260-006	6"	Extension Rod 6" long for 52-255-005 and 52-255-010	30.00
52-260-007	6"	Extension Rod 6" long for 52-255-015, 52-25-020 and 2-255-022	40.00
52-260-008	6"	Extension Rod 6" long for 52-255-025 and over	42.00

Note: ALL "HOLMIKE" are graduation in .00025". Other sizes up to 15" available on request.

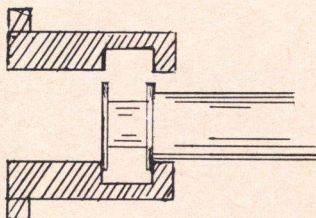
52-255-050 Set .500 - .625, .625 - .750, .750-1.000
 52-255-055 Set .750 - 1.000, 1.000 - 1.500, 1.500 - 2.000

SETS PACKED IN FITTED CASE WITH 2 SETTING RINGS

\$330.00
 \$425.00



THE **Fowler** -BOWERS GROOVE MICROMETER

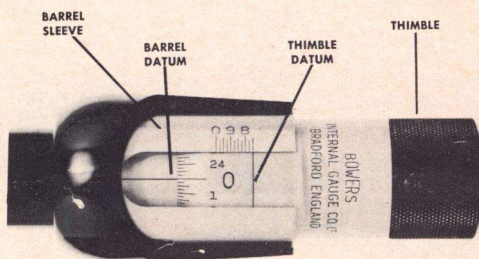


A highly accurate Micrometer (.00025 graduations) to measure grooves, locate grooves inside of holes, locate shoulders in relation to bottom of holes, etc.

This unit is manufactured to the same high standards of other Fowler-Bowers Micrometers, and is guaranteed to measure accurately to .00025".

A Setting Gauge .250" is furnished with each unit.

METHOD OF READING



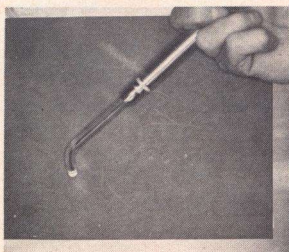
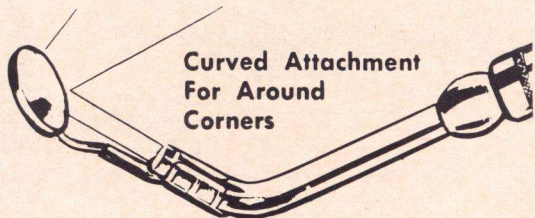
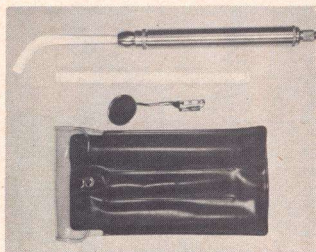
In an attempt to eliminate the human error, the "GROOVE-MIC" models incorporate an entirely new method of reading. An outer sleeve has been added which carries the graduations which in other Micrometers are situated on the barrel. To facilitate easier reading a datum line has also been added to the thimble, this being used to read off against the graduations on the barrel sleeve. The thimble is graduated in .00025" readings (on the metric model .005mm) and can be relied upon to measure accurately within these tolerances.

Code	Inside Range	Graduations
52-265-000	.0625"-.5625"	.00025"

Includes Velvet Lined Case and Standard

Price
\$85.00

DEEP HOLE LIGHT



A self-contained light for viewing into deep holes, around corners, under deep grooves, etc. It consists of a battery case, holding two pen light batteries, positive switch, curved and straight light conveying devices which place intense illumination at their ends directly on the bottom of the hole being viewed.

A small mirror is also supplied which facilitates viewing in a manner similar to that of a dentist examining the back of teeth. The whole unit is packed in an attractive plastic case.

Code	Description
52-270-000	Deep Hole Light and Accessories

Price
\$5.65
Complete with case

FOWLER PASS TYPE INSIDE MEASURING MICROMETER

For Direct Inside Measurements

SPECIAL FEATURES

Inside micrometer with caliper type Jaws for accurate internal measurements.

Frame designed to enable the micrometer to make small internal measurements.

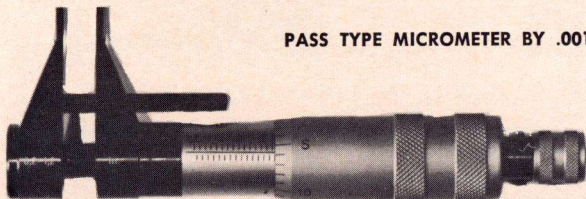
Measuring surfaces are of rust proof steel hardened and ground on a radius to provide accurate measurement and prevent locking.

Threads of spindle are hardened and ground for extreme accuracy.

Black graduations on satin chrome finish for easy reading.

Ratchet stop for accurate "feel".

Furnished in fine fitted wooden case.



PASS TYPE MICROMETER BY .001"

Code	Range	Price
52-275-001	0.2"-1.2"	\$28.00
52-275-002	1.2"-2.2"	\$32.50

Above prices include fitted wooden cases

"HELIOS" PRECISION CONTROL MICROMETER

THE MICROMETER WITH INTERCHANGEABLE ANVILS THAT CAN BE USED FOR OFFSET MEASUREMENTS.

SPECIAL FEATURES

Interchangeable anvils permits measuring of tubing, angular pieces, cylindrical walls, holes, slots to an edge and ext.

The various anvils also swivel on base so that accurate offset measurements can be made where the measuring surfaces are not on one axis.

By the use of the base fixture the unit can be made into a super-accurate Bench Micrometer.

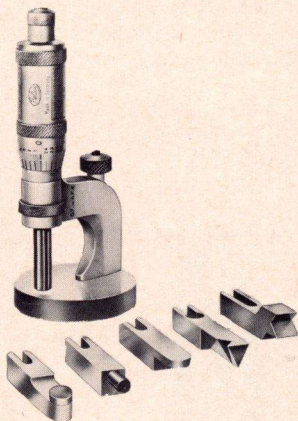
By the use of thread measuring wires, it can be used as a thread micrometer.

The Micrometer itself is made to the highest standards of accuracy.

The spindle is hardened, ground, and lapped from the solid.

The measuring inserts are super accurately fitted so that an accuracy within .0001 is insured on any of the combinations.

The tool is finished in dull chrome and is furnished in a fitted wooden case.



Code	Range	Graduation	Description	Price
52-280-000	0"-1"	.0001"	Control Micrometer complete with 5 assorted anvils and base.	\$159.50

Price includes fitted case

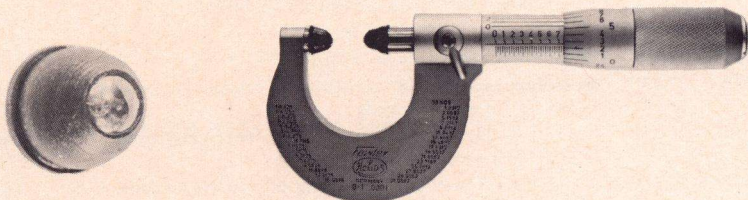
BALL ATTACHMENT FOR MICROMETER

An attachment for changing flat anvils of micrometers to spherical anvils — An inexpensive way to obtain the services of a BALL MICROMETER.

Retainer is made of molded rubber and fits any micrometer anvil or spindle — .2000" diameter chrome steel ball is hardened and lapped to extreme accuracy.

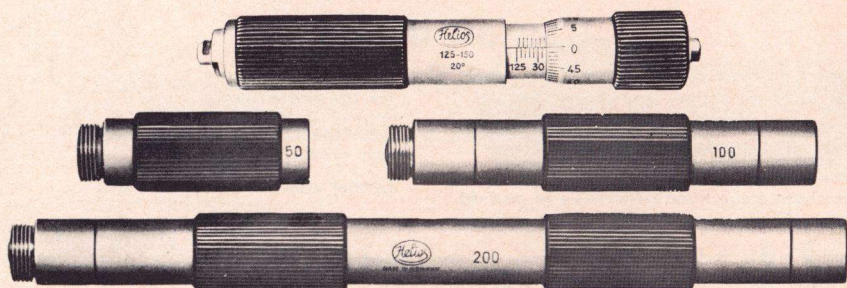
In actual use merely subtract from your reading .2000", or .4000" (if two balls are used).

CODE 52-285-000 BALL ATTACHMENT FOR MICROMETER to measure curved surfaces, with standard micrometers. Packed one ball in plastic case. **\$1.50**



"HELIOS" GIANT INSPECTION INSIDE MICROMETERS

4" to 84" CAPACITY



MICROMETER HEAD READS IN .0001" INCREMENTS

This unit is ideal for the requirements of the space and aircraft industry for extra large precise measurements. It is also well suited for use in Jig Bore, Millers, etc.

Two or more units can be used together for larger measurements (to 164" or more).

THE MICROMETER HEAD

is made to the same high specifications (863/1Din) as other Helios Micrometers. Hardened and ground threads and spindle. CARBIDE TIPS. Satin chromed finish. Pitch .025". Spindle diameter .32". Thimble diameter .80".

All **MEASURING SURFACES** on rods are ground and plano parallel lapped.

THE RODS THEMSELVES are ingeniously sprung inside of an insulated outside wall and they have spherical ends where they meet each other to insure absolute accuracy regardless of how many rods are placed end to end. This unit is heavily constructed so that extreme rigidity and accuracy are insured.

EACH SET is packed in a specially fitted wooden case.



Measuring Rods Float Inside of Insulated Outside Casing



SIZE AND PRICES

Code	Measuring Range	Description	Price
52-290-006	4"- 6"	Micrometer Head only in 1/10,000"	\$ 64.00
52-290-018	4"-18"	Measuring range 4"-18" consisting of micrometer head 4"-6" —2—4—6" measuring rods	\$167.50
52-290-048	4"-48"	Measuring range 4"-48" consisting of micrometer head 4"-6" —2—4—8—16—16" measuring rods	\$260.00
52-290-084	4"-84"	Measuring range 4"-84" consisting of micrometer head 4"-6" —2—4—8—16—16—32" measuring rods	\$315.00



FOWLER SATIN CHROME RULES



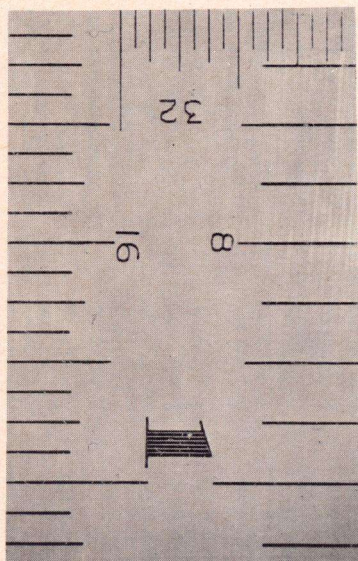
SHEFFIELD TOOL STEEL—MACHINE ENGRAVED—SATIN CHROME FINISH

Our Precision Rules are manufactured from a high quality, rustless steel. Satin chrome finished enables easy reading. The ends are finished for accurate size. Instant reading graduations.

The same high quality of all FOWLER products enters into the manufacture of these rulers which conform to the highest standard in the industry. Available in sizes from 6" to 24", rigid and flexible, and in 16 different types of graduations.

THESE ARE THE FINEST MACHINISTS RULES AVAILABLE.

AVAILABLE IMMEDIATELY FROM THE LARGEST STOCK IN NORTH AMERICA.



$1/32$ " end reading graduations are available in Code 52-330-006 — As shown above.

End Graduations are very useful for measuring grooves, shoulders and holes.



SATIN CHROMED MACHINE DIVIDED TEMPERED STEEL RULES

These Rules are double sided — square ended. They are made to the highest standards of accuracy, have machine divided graduations, ends are ground square. Matt Satin Chrome finish insures protection against rusting and provides a non-glare surface for easy reading.



SHEFFIELD TOOL STEEL — FULLY TEMPERED FLEXIBLE RULES — SATIN CHROME FINISH

Model No.	Size	Readings	Price Each	Price Per Box	*No. of Pieces Per Box
52-295-006	6"x $\frac{1}{2}$ "x.02"	{One Side Inch to 8th & 16th Reverse Inch to 32nd & 64th	\$2.25	\$24.00	12 Pcs.
52-295-012	12"x $\frac{1}{2}$ "x.02"	Same as Above	3.50	37.80	12 Pcs.
52-295-018	18"x $\frac{3}{4}$ "x.02"	Same as Above	5.50	30.00	6 Pcs.
52-295-024	24"x $\frac{3}{4}$ "x.02"	Same as Above	8.50	45.60	6 Pcs.
52-300-006	6"x $\frac{1}{2}$ "x.02"	{One Side Inch to 32nd & 64th Reverse Inch to 10th & 100th	2.25	24.00	12 Pcs.
52-300-012	12"x $\frac{1}{2}$ "x.02"	Same as Above	3.50	37.80	12 Pcs.
52-300-018	18"x $\frac{3}{4}$ "x.02"	Same as Above	5.50	30.00	6 Pcs.
52-300-024	24"x $\frac{3}{4}$ "x.02"	Same as Above	8.50	45.60	6 Pcs.
52-310-006	6"x $\frac{1}{2}$ "x.02"	{One Side Inch to 32nd & 64th Reverse Inch to 50th & 100th	2.80	30.00	12 Pcs.
52-310-012	12"x $\frac{1}{2}$ "x.02"	Same as Above	4.50	49.20	12 Pcs.
52-310-018	18"x $\frac{3}{4}$ "x.02"	Same as Above	6.50	35.40	6 Pcs.
52-320-006	6"x $\frac{1}{2}$ "x.02"	{One Side Inch to 32nd & 64th Reverse Inch to 10th & 50th	2.25	24.00	12 Pcs.
52-320-012	12"x $\frac{1}{2}$ "x.02"	Same as Above	3.50	37.80	12 Pcs.
52-320-018	18"x $\frac{3}{4}$ "x.02"	Same as Above	5.50	30.00	6 Pcs.

NOTE *No broken or assorted boxes permitted at the box price.

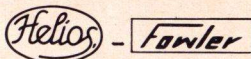
SHEFFIELD TOOL STEEL — FULLY TEMPERED RIGID RULES — SATIN CHROME FINISH

Code	Size	Readings	Price Each	Price Per Box	*No. of Pieces Per Box
52-330-006	6"x 3/4"x.03"	{One Side Inch to 8th & 16th Reverse Inch to 32nd & 64th	\$2.25	\$24.00	12 Pcs.
52-330-012	12"x1 1/8"x.04"	Same as Above	3.50	37.80	12 Pcs.
52-330-018	18"x1 1/8"x.04"	Same as Above	5.50	30.00	6 Pcs.
52-330-024	24"x1 1/8"x.04"	Same as Above	8.50	45.60	6 Pcs.
52-340-006	6"x 3/4"x.03"	{One Side Inch to 32nd & 64th Reverse Inch to 10th & 100th	2.25	24.00	12 Pcs.
52-340-012	12"x1 1/8"x.04"	Same as Above	3.50	37.80	12 Pcs.
52-340-018	18"x1 1/8"x.04"	Same as Above	5.50	30.00	6 Pcs.
52-340-024	24"x1 1/8"x.04"	Same as Above	8.50	45.60	6 Pcs.
52-350-006	6"x 3/4"x.03"	{One Side Inch to 32nd & 64th Reverse Inch to 50th & 100th	2.80	30.00	12 Pcs.
52-350-012	12"x1 1/8"x.04"	Same as Above	4.50	49.20	12 Pcs.
52-350-018	18"x1 1/8"x.04"	Same as Above	6.50	35.40	6 Pcs.
52-350-024	24"x1 1/8"x.04"	Same as Above	10.00	54.00	6 Pcs.
52-360-006	6"x 3/4"x.03"	{One Side Inch to 32nd & 64th Reverse Inch to 10th & 50th	2.25	24.00	12 Pcs.
52-360-012	12"x1 1/8"x.04"	Same as Above	3.50	37.80	12 Pcs.
52-360-018	18"x1 1/8"x.04"	Same as Above	5.50	30.00	6 Pcs.

NOTES *No broken or assorted boxes permitted at the "Box Price"

**This ruler is provided with 1/32" graduations on both ends one side only





MACHINISTS COMBINATION SQUARE SETS

Available with square head, square head and center head, and also as a full combination set with the bevel protractor head.

The blades are fully hardened and tempered. The 6" and 12" are finished in easy-to-read SATIN CHROME.

These squares and combination sets meet Fed. Specs. Type VI Class A.

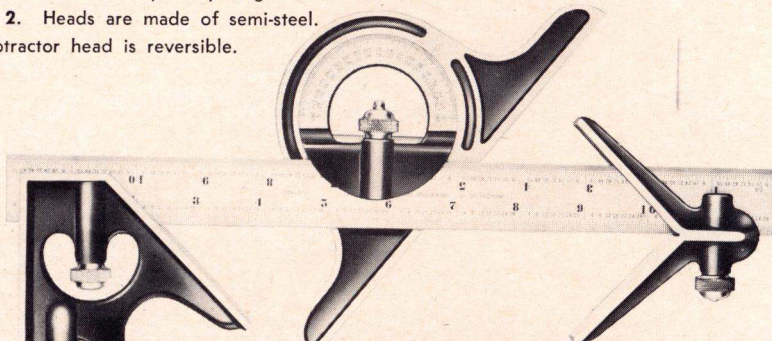
Two types of graduations available.

ALL COMBINATION SQUARE SETS ARE AVAILABLE IN TWO GRADES.

GRADE 1. Heads are specially forged and **hardened.**

GRADE 2. Heads are made of semi-steel.

The protractor head is reversible.



FULL COMBINATION SQUARE SET (4 Pcs.)

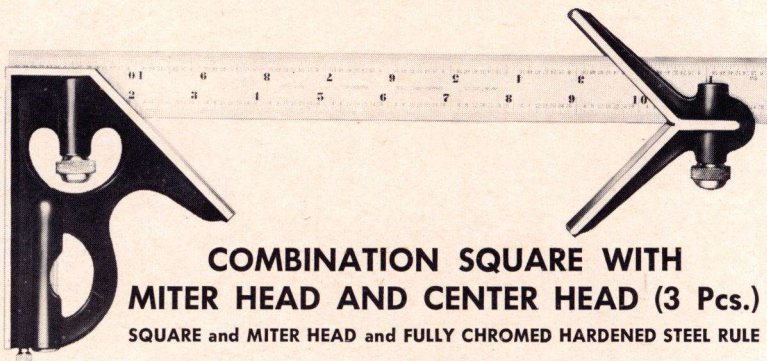
Complete units consisting of:

Square and miter head, center head, bevel protractor, and **FULLY HARDENED AND TEMPERED BLADE.** The double indexed protractor is graduated 180 degrees in both directions.

All recessed areas finished in baked black enamel.

The blade is finished in satin chrome (except 18" and 24").

Length of Rule	Graduations of Rulers	Hardened Code	Price	Regular Code	Price
12"	One side 8ths, 16ths. Other side 32nds, 64ths	52-370-112	\$41.50	52-370-012	\$25.00
12"	One side 32nds, 64ths. Other side 50ths, 100ths.	52-375-112	\$41.50	52-375-012	\$27.00
18"	One side 8ths, 16ths. Other side 32nds, 64ths.			52-370-018	\$28.00
18"	One side 32nds, 64ths. Other side 50ths, 100ths.			52-375-018	\$29.50
24"	One side 8ths, 16ths. Other side 32nds, 64ths.			52-370-024	\$32.00



COMBINATION SQUARE WITH MITER HEAD AND CENTER HEAD (3 Pcs.)

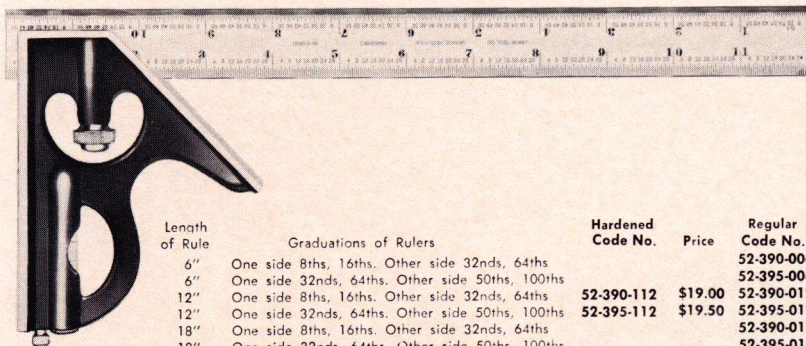
SQUARE and MITER HEAD and FULLY CHROMED HARDENED STEEL RULE

Length of Rule	Graduations of Rulers	Hardened Code	Price	Regular Code	Price
6"	One side 8ths, 16ths. Other side 32nds, 64ths.			52-380-006	\$13.50
6"	One side 32nds, 64ths. Other side 50ths, 100ths.			52-385-006	14.00
12"	One side 8ths, 16ths. Other side 32nds, 64ths.	52-380-112	\$25.00	52-380-012	16.00
12"	One side 32nds, 64ths. Other Side 50ths, 100ths.	52-385-112	\$28.00	52-385-012	17.00
18"	One side 8ths, 16ths. Other side 32nds, 64ths.			52-380-018	19.00
18"	One side 32nds, 64ths. Other side 50ths, 100ths.			52-385-018	20.00
24"	One side 8ths, 16ths. Other side 32nds, 64ths.			52-380-024	23.00

NOTE: Fitted wooden case for 12" Combination Squares is available at \$5.75.


Fowler

COMBINATION SQUARE (2 Pcs.)



Length
of Rule

Graduations of Rulers

Hardened
Code No.

Price

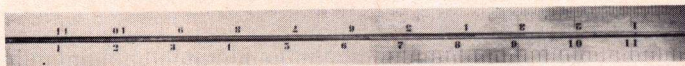
Regular
Code No.

Price

6"	One side 8ths, 16ths. Other side 32nds, 64ths			52-390-006	\$ 9.50
6"	One side 32nds, 64ths. Other side 50ths, 100ths			52-395-006	\$11.00
12"	One side 8ths, 16ths. Other side 32nds, 64ths	52-390-112	\$19.00	52-390-012	\$13.50
12"	One side 32nds, 64ths. Other side 50ths, 100ths	52-395-112	\$19.50	52-395-012	\$14.00
18"	One side 8ths, 16ths. Other side 32nds, 64ths			52-390-018	\$15.00
18"	One side 32nds, 64ths. Other side 50ths, 100ths			52-395-018	\$16.50
24"	One side 8ths, 16ths. Other side 32nds, 64ths.			52-390-024	\$19.00

HELIOS-FOWLER CHROMED MACHINISTS SQUARE BLADES

Fully hardened and tempered tool steel blades suitable for use as a straight edge. Satin chrome finish. Machine sub divided. Quick reading figures on fine graduations. (18" and 24" blades not chromed.)



FULLY HARDENED AND TEMPERED TOOL STEEL BLADE — SATIN CHROMED FINISHED
(18" and 24" NOT CHROMED)

Length
of Rule

Graduations of Rulers

Ruler for
M Code No.

Price

Ruler for
R Code No.

Price

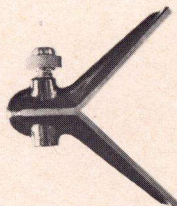
6"	One side 8ths, 16ths. Other side 32nds, 64ths (satin chromed)			52-400-006	\$ 6.00
6"	One side 32nds, 64ths. Other side 50ths, 100ths (satin chromed)			52-405-006	\$ 7.00
12"	One side 8ths, 16ths. Other side 32nds, 64ths (satin chromed)	52-400-112	\$9.00	52-400-012	\$ 8.50
12"	One side 32nds, 64ths. Other side 50ths, 100ths (satin chromed)	52-405-112	\$9.00	52-405-012	\$10.00
18"	One side 8ths, 16ths. Other side 32nds, 64ths (not chromed)			52-400-018	\$10.00
18"	One side 32nds, 64ths. Other side 50ths, 100ths (not chromed)			52-405-018	\$12.00
24"	One side 8ths, 16ths. Other side 32nds, 64ths (not chromed)			52-400-024	\$14.00



HELIOS-FOWLER MACHINISTS SQUARE AND MITER HEADS

Baked black enamel finish. All working surfaces precision ground and tested. Steel scriber. Full bedded level vial and scriber.

Description	Hardened Code No.	Price	Regular Code No.	Price
For 6" blades			52-410-005	\$5.00
For 12", 18" and 24" blades	52-410-110	\$10.50	52-410-010	\$6.00



HELIOS-FOWLER MACHINISTS CENTER HEADS

Black baked enamel finish. All working surfaces precision ground and tested.

Description	Hardened Code No.	Price	Regular Code No.	Price
For 6" blades			52-415-005	\$4.00
For 12", 18" and 24" blades	52-415-110	\$7.50	52-415-010	\$4.50

HELIOS-FOWLER BEVEL PROTRACTOR

Graduated 180 degrees in both directions. Double indexed and can be read from either index. Body has a wide base for support when using blade in vertical position. Made of cast semi-steel. Steel guarded level vial. All working surfaces precision ground and tested.

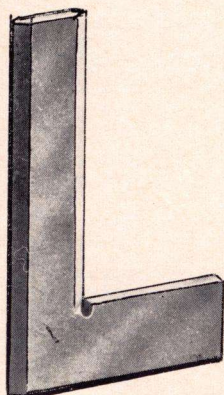
Description	Hardened Code No.	Price	Regular Code No.	Price
Fits 12", 18" and 24" blades	52-420-100	\$18.40	52-420-000	\$10.00



Fowler

PRECISION SQUARES

PRECISION BEVELED EDGE FULLY HARDENED SQUARES



These squares are for very exacting work.

Made from a single piece of fully seasoned tool steel.

Blades are beveled on both edges of each side.

Squares are accurate right angles both inside and outside. Beams and blades are ground and accurately lapped for straightness and parallelism. Accuracy Class I.

Squares are fully hardened (Rockwell 55).

Length of blade is measured from inner edge of beam to end of blades.

SIZES AND PRICES

Code	Type	Length of Blade	Length of Beam	Price
52-425-002	Beveled	2"	1 5/8"	\$ 7.50
52-425-003	Beveled	3 1/4"	2 1/2"	\$ 9.75
52-425-005	Beveled	5 1/4"	4"	\$15.00
52-425-008	Beveled	8"	6"	\$22.50

Above packed in individual cartons

Fowler

PRECISION FULLY HARDENED SQUARES

These squares are of **extra heavy construction**, and made from fully hardened tool steel throughout.

Squares are accurate right angles both inside and outside. Beams and blades are ground and accurately lapped for straightness and parallelism. Accuracy Class I.

Squares are fully hardened (Rockwell 55).

Length of blade is measured from inner edge of square.

SIZES AND PRICES

Code	Type	Length of Blade	Length of Beam	Price
52-430-002	Plain	2"	1 5/8"	\$ 7.00
52-430-003	Plain	3 1/4"	2 1/2"	\$ 9.00
52-430-005	Plain	5 1/4"	4"	\$14.00
52-430-008	Plain	8"	6"	\$18.00

Above packed in individual cartons

52-430-014	Plain	14"	10"	\$35.00
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14" Square is packed in leather wallet

"CHESTERMAN"

STANDARD MACHINISTS STEEL SQUARES

MADE OF THE FINEST SHEFFIELD STEEL

Designed for precision layout and measurement work of extreme accuracy.

Squares are true right angles, both inside and outside. Beams and blades are ground and accurately lapped for straightness and parallelism.

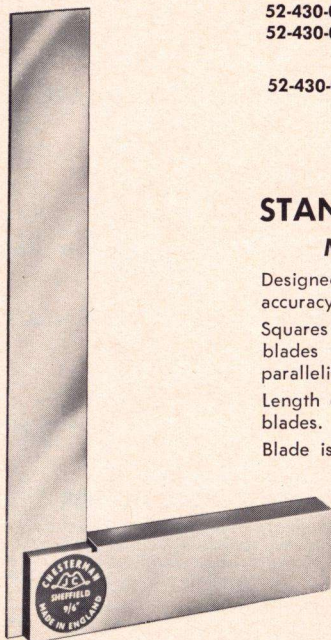
Length of blade is measured from inner edge of beam to end of blades.

Blade is hardened.

SIZES AND PRICES

Code	Type	Length of Blade	Length of Beam	Price
52-432-004	Plain	4"	3"	\$3.00
52-432-006	Plain	6"	4"	\$4.50
52-432-009	Plain	9"	6"	\$9.00
52-432-012	Plain	12"	8"	\$16.00

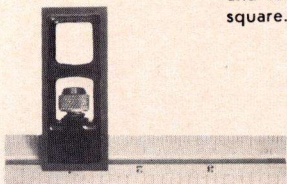
Above packed in individual cartons





MACHINISTS DOUBLE SQUARE

Satin chromed blade. Precision ground semi-steel with fully hardened and tempered steel blade. Can be used as a parallel or as a double square. Available only with 4" blade.

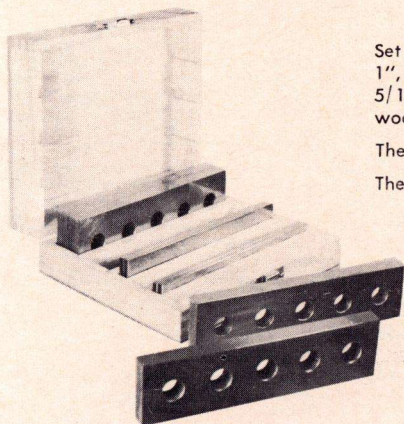


Code No.
52-435-000

Price
\$7.75

FOWLER PRECISION PARALLEL SET

To be used in setting up work for drilling and measuring.



Set of 4 pairs of hardened and ground parallels. 1", 1 1/4", 1 1/2", 1 3/4" in height x 6" long, with 5/16ths and 1/2" holes (large pairs). Furnished in wood case.

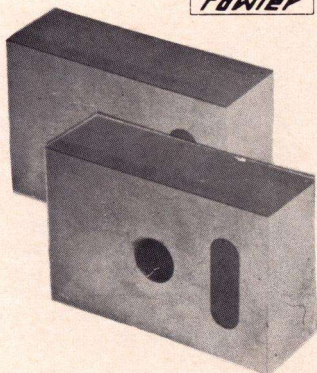
The 1" and 1 1/4" Parallels are 3/16" Thick

The 1 1/2" and 1 3/4" Parallels are 1/2" Thick

Code No.	Description	Price Per Set
52-437-001	Set of 4 Parallels Includes fitted wood case	\$47.50



PRECISION 1-2-3 BLOCKS



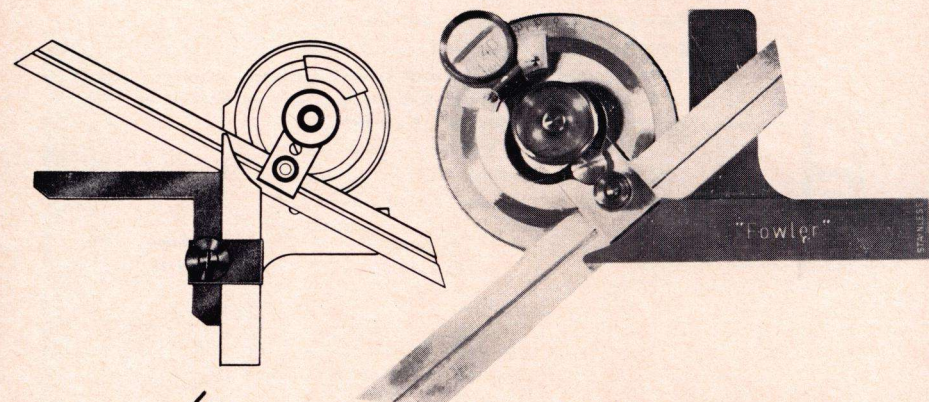
Precision ground to very close tolerances. These blocks are very useful in mounting work for precision grinding, lay-out work, etc. Blocks are hardened to 58-60 RC and ground to surface finish 6-10 micro-inches. Tolerances are guaranteed to .001 for squareness per inch. .001 to .0002 for parallelity. Blocks are matched, and packed in fitted wooden case.

Code No.
52-439-001

Description
Pair of 1"H x 2"W x 3"L In Wooden Case

Price
\$28.50

"HELIOS" PRECISION BEVEL PROTRACTORS WITH VERNIER READING IN 5 MINUTES OF ARC



SPECIAL FEATURES

This protractor is made of stainless steel throughout.

Dial face and Vernier are finished in satin chrome to insure easy reading.

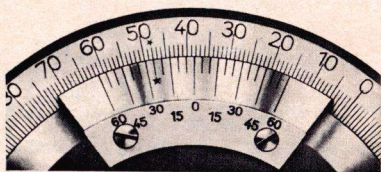
Protractor Dial is graduated over 360° (in 0° to 90° sectors) and rotates around the full circle. Readings to 5' of arc with vernier.

Blade slides full length. 6" and 12" blades are available as extras, along with a full line of accessories. A magnifier is supplied with each instrument so as to facilitate reading of the ultra fine divisions of the vernier and dial.

Code No.

Description

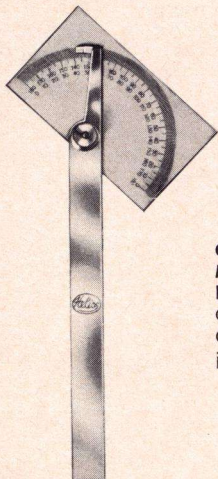
- | | | |
|-------------------|--|----------------|
| 52-440-006 | Bevel protractor with 6" blade and special magnifier in fitted wooden case. | \$42.00 |
| 52-440-012 | Bevel protractor with 12" blade and special magnifier in fitted wooden case. | \$46.00 |
| 52-445-005 | 6" Scale only. | \$ 4.40 |
| 52-445-010 | 12" Scale only. | \$ 7.50 |
| 52-445-015 | Highly accurate square which is attachable to protractor. | \$ 9.00 |
| 52-445-020 | Acute angle attachment to be used for extreme angles and hard to reach places. | \$ 5.00 |
| 52-445-025 | Base for protractor with ground V base, clamps. Convenient for setting up jobs on surface plates, milling machines, etc. | \$11.00 |
| 52-445-030 | Special Magnifier only. | \$ 4.50 |



HOW TO READ A VERNIER ON UNIVERSAL BEVEL PROTRACTORS
The Vernier scale is graduated to the right and left of zero up to 60 minutes, each of the Vernier graduations representing 5 minutes (5').

The Vernier reading of the Universal Bevel Protractor must be read in the same direction from zero as the protractor, from either left or right.

EXAMPLE: In the illustration above, the zero on the Vernier scale lies between "38" and "39" on the protractor dial to the left of the zero, indicating 38 whole degrees. Also reading to the left on the Vernier. The 5th line of the Vernier graduation coincides with "48" mark on the dial as indicated by the stars and therefore $5 \times 5' = 25$ minutes are to be added to the number of degrees. The reading of the protractor, in this example, therefore, is 38 degrees and 25 minutes ($38^{\circ} 25'$).



PROTRACTORS For Measuring Angles From 0° - 180°

Code No. 52-450-010 — Measures $3 \frac{5}{16}" \times 2"$ and has 6" ruler. Made of Chrome Steel, Satin Chrome Finish. Has an adjusting screw.

Price \$5.20

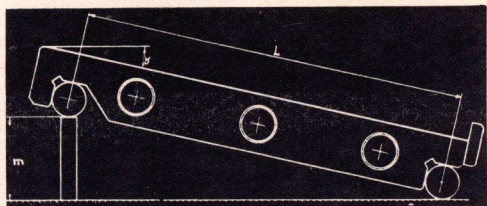


Code No. 52-450-005 — Measures $3 \frac{5}{16}"$ in diameter and has a 6" ruler. Made of Chrome Steel, Satin Chrome Finish. Has an Adjusting Screw.

Price \$4.80

"FOWLER" SINE BARS — SINE PLATES

The one way to secure a high degree of accuracy in measuring angles for grinder and milling machine set ups is by the use of SINE BAR equipment in conjunction with gauge blocks. We offer herewith assorted tools which will take care of most shop requirements.

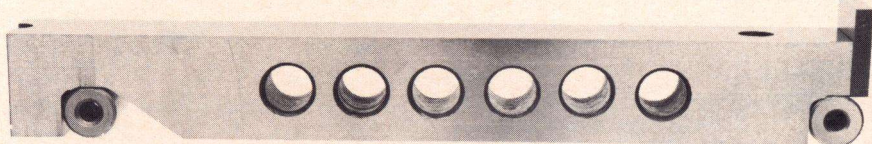


The size of gauge blocks necessary to obtain a given angle can be calculated from the following formula:

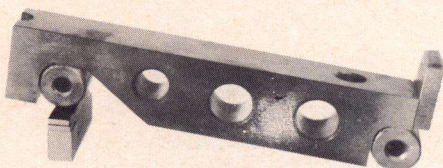
$$E = L \times (\text{Sine } \alpha)$$

Where E is the size of the gauge block and L is the distance between the centers of the rolls of the sine bar. α is the desired angle.

52-455-015



52-455-010



SPECIAL FEATURES

The Sine Bar and Rolls are hardened and ground for extreme accuracy.

The center to center distance "L" is accurate within .0002".

The top surface is accurate to .00003" per inch of length.

Parallelism .00004".

Various size holes are furnished to facilitate clamping.

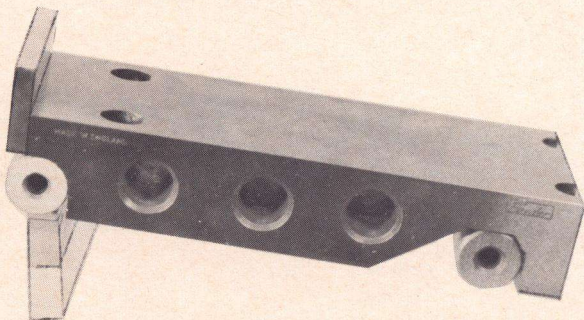
There is a flange on the end for resting work.

A special feature of the tool is that the bottom part of the bar protrudes lower than the bottom of the "rolls" so that when the tool is moved about the surface plate all wear is eliminated from the rolls.

The Sine Bars and 5" sine plate have some tapped holes for holding down.

A certificate of accuracy is furnished.

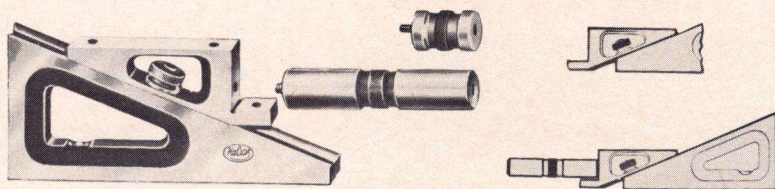
Code No.	Description	Distance Between		Price
		Width	Center of Rolls	
52-455-010	5" tool steel hardened and ground Sine Bar	15/16"	5"	\$32.50
52-455-015	10" tool steel hardened and ground Sine Bar	1"	10"	\$65.00
52-455-020	5" tool steel hardened and ground Sine Plate	2"	5"	\$45.00



52-455-020 SINE PLATE

"HELIOS" PLANER and SHAPER GAUGE

The quickest and most accurate way of setting tools in the milling machine, planer, etc.



SPECIAL FEATURES

Base and slide are beveled to provide accurate alignment and parallelism.
Base and slide are hardened.
Range is from 1/4" to 6 1/4". Extension is 3" long.

Precision level insures accuracy.

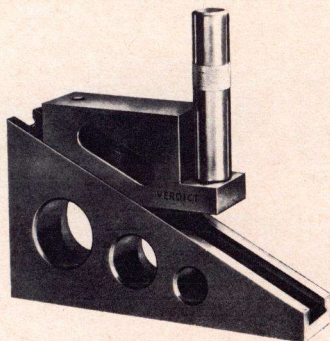
Platform has extra tapped holes to accommodate post for Dial Indicators and other accessories.

Code No.

Description

Price

52-460-005	5" long x 9/16" wide Planer Gauge with 2 extension posts (Maximum height 6 1/2") and precision level.	\$27.50 (Price includes case)
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"FOWLER" HEAVY DUTY PLANER and SHAPER GAUGE

A precision made Planer and Shaper Gauge — ground square on all working surfaces

SPECIAL FEATURES

All surfaces are ground square, including side surfaces, so that gauge can be used on its side.
Base and slide are hardened.

Sides have holes to facilitate clamping.

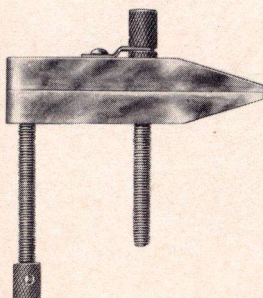
Platform has extra tapped holes to accommodate post.

Code No.

Description

Price

52-460-010	5" long x 1" wide Planer Gauge with 2 1/2" extension post (8 1/4" maximum height).	\$35.00
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TOOLMAKERS CLAMPS

SPECIAL FEATURES

Deep case hardened steel finish. Screw heads drilled allowing use of pin for tightening. Clamps equipped with spring clip and retaining ring. Ends of jaws chamfered.

Code No.	Opening	Jaw Length	Price Each	Price Per Box of 12
52-465-005	1"	2"	\$1.60	\$17.50
52-465-010	1 5/8"	3"	\$2.25	\$24.00
52-465-015	2"	4"	\$3.25	\$32.50

"FOWLER" TOOLMAKERS VISE

An indispensable Vise for inspection, precision jig boring, milling, grinding, and wherever precise holding is necessary.

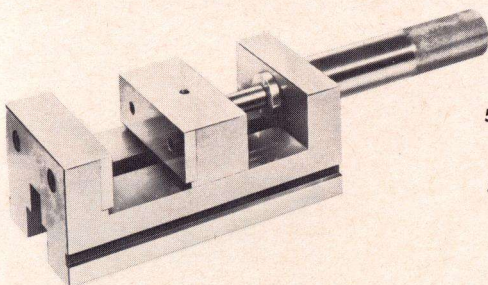
SPECIAL FEATURES

The base and front jaw are of one-piece all steel construction.

All surfaces are hardened and precision ground square and parallel to an accuracy of 0.0004".

Clamping slots are provided and jaws are easily replaced.

Hardened and ground dovetail slides eliminate "lift" and insure consistent accuracy.



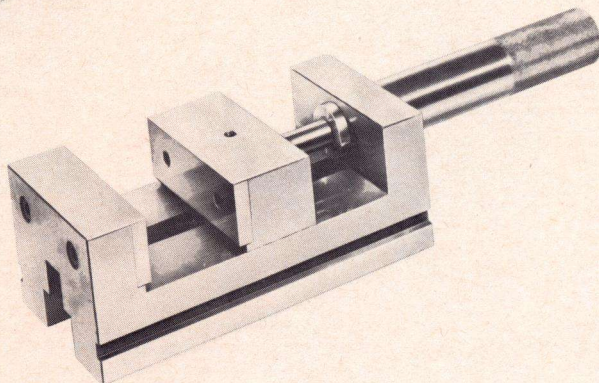
Code
No.

Description

Price

52-466-002 Vise with 1 7/8" jaws \$60.00
Maximum opening 1 1/4"

52-466-003 Vise with 3" jaws \$75.00
Maximum opening 2 5/8"

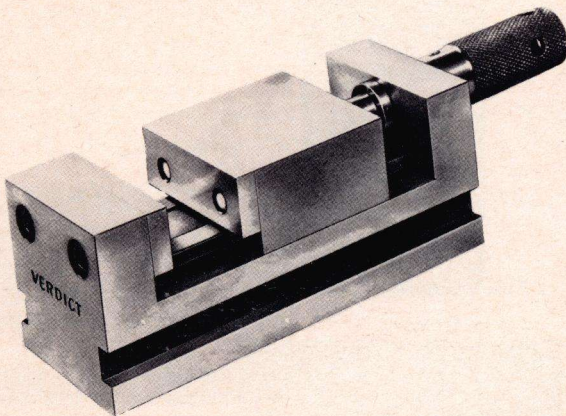


"FOWLER" SUPER PRECISION INSPECTION VISE

INSPECTION VISE indispensable where accurate clamping is required. Suitable for surface grinding, jig boring and inspection purposes. All-steel construction with faces hardened and precision ground within 0.0002" square and parallel.

Hardened and ground dovetail slides eliminate "lift" and ensure consistent accuracy.

Clamping slots and two 3/8" wht. holes in base provide easy means of fixing to angle plates etc. Detachable easily replaced jaws.



Code
No.

Description

Price

52-467-000

Vise with jaws 2" wide - maximum opening 1.4"

\$98.50



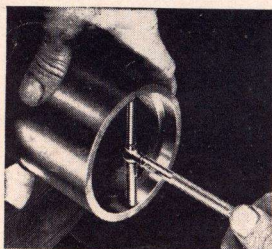
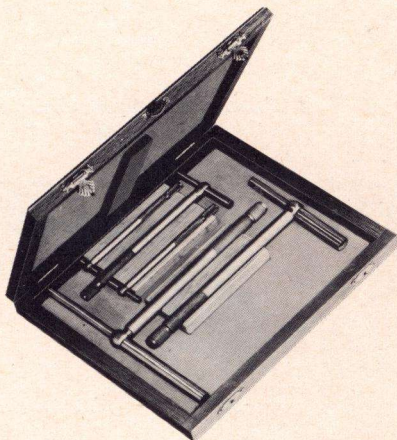
TELESCOPING GAUGE SETS

SPECIAL FEATURES

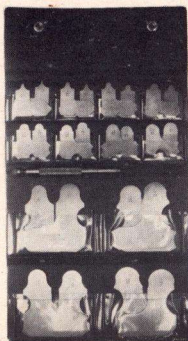
These gauges enable one to measure accurately and inexpensively in places where otherwise nothing but very expensive bore gauges or inside micrometers can be used.

Plungers of gauge expand from the center, under spring tension, to the size of the hole being measured, and is then locked in place by knurled knob. Measurement can then be obtained by a Micrometer or Vernier Caliper.

The end of the rods are hardened and ground on the radius of the smallest hole that the gauge will enter.



Code No.	Description and Range	Price
52-470-005	Set consists of five telescoping gauges, packed in leatherette case in the following ranges: $\frac{1}{2}'' - \frac{3}{4}''$ — $\frac{3}{4}'' - 1\frac{1}{4}''$ — $1\frac{1}{4}'' - 2\frac{1}{8}''$ — $2\frac{1}{8}'' - 3\frac{1}{2}''$ — $3\frac{1}{2}'' - 6''$	\$29.50



RADIUS GAUGE SETS

SPECIAL FEATURES

Made of rust-proof steel. Set consists of 24 individual gauges which can be used separately, thus insuring maximum accuracy.

Each gauge is marked with its radius.

Each gauge has five measuring surfaces for convex and concave radii.

A handy holder is included with each set.

Set is packed in handy leatherette holder.



Code No.	Description	Price Per Set
52-470-010	24 gauge set, from $\frac{1}{32}''$ to $\frac{1}{2}''$ by 64ths. Including holder in leatherette case.	\$14.00



PRECISION "V" BLOCKS AND CLAMPS

39g.

HARDENED AND GROUND

For use where extremely accurate setting is desired

SPECIAL FEATURES

FOWLER "V" Blocks are made of chrome steel and are hardened and ground to extreme limits of accuracy.

All sides are ground square and parallel to each other.

The Vs are ground central, parallel and square to the ends.

They are accurate enough to be used in layouts and surface plate work.

They are sturdy enough to be used in machining operation.

The 52-475-015 and 52-475-020 Models are designed so the clamps do not protrude over the sides. Thus the tool can be used on its sides.



**Code
No.**

Description

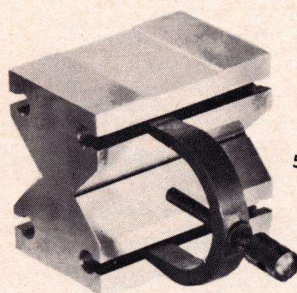
**Price
Per Set**

52-475-005 Set of 2 matched, hardened, and ground "V" Blocks $1\frac{3}{8}" \times 1\frac{5}{8}" \times 1\frac{3}{4}"$ and two clamps. Will hold up to 1" diameter round work — "V" angle 90° .

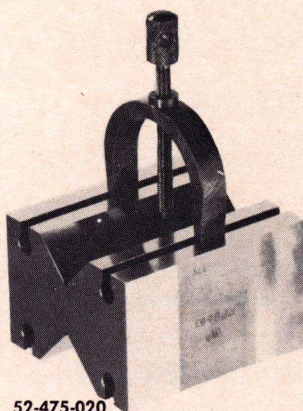
**\$16.50
Pair**

52-475-010 Same as above except $1\frac{5}{8}" \times 1\frac{3}{4}" \times 2\frac{3}{4}"$. Will hold round to $1\frac{1}{2}"$ diameter.

**\$24.00
Pair**



52-475-015



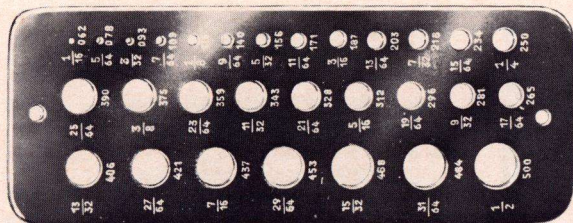
52-475-020

52-475-015 Set of 2 matched, hardened, and ground "V" Blocks $1\frac{3}{4}" \times 2\frac{1}{2}" \times 2\frac{3}{4}"$ and 2 clamps. Will hold up to $1\frac{1}{2}"$ diameter round work. Clamps do not protrude from the sides.

**\$32.50
Pair**

52-475-020 Same as above except $2\frac{3}{4}" \times 3\frac{1}{2}" \times 4\frac{7}{8}"$. Will hold up to $2\frac{1}{8}"$ diameter round work.

**\$55.00
Pair**



DRILL GAUGES HARDENED AND GROUND

Code No.

Description

Price Each

52-480-005	$1/16" - 1/2"$	Jobbers Drill Set — 29 Holes	\$6.95
52-480-010	# 1 - #60	Number Drill Set — 60 Holes	\$6.00
52-480-015	# 61 - #80	Number Drill Set — 20 Holes	\$6.75
52-480-020	A - Z	Letter Drill Set — 26 Holes	\$6.70

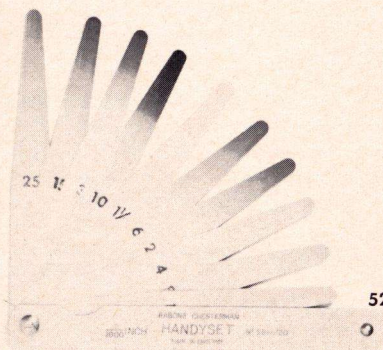
CHESTERMAN THICKNESS GAUGES

DESCRIPTION

Leaves are made of finest tempered steel of the exact thickness designated. Each leaf is tested and marked with its thickness.

Gauge consists of ten tapered leaves $\frac{1}{2}'' \times 4''$, ranging from $\frac{1}{2}/1000$ to $25/1000$ ths of an inch.

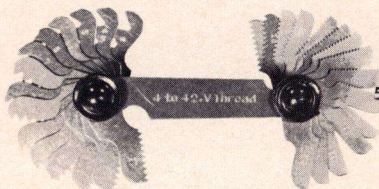
Packed in plastic display wallets — 12 gauges to each wallet.



Code No.	Description	Price Each	Per Wallet of 12
52-485-005	Thickness Gauges of 10 leaves ranging from $\frac{1}{2}/1000$ to $25/1000$.	\$2.00	\$18.00



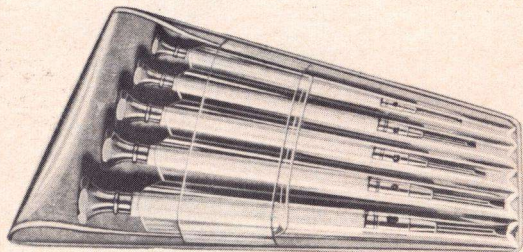
SCREW PITCH GAUGES



Code No.	Description	Price	Price per box of 12 sets
52-485-015	Gauge with 30 blades from 4 to 42 pitch standard V thread.	\$2.25	\$22.00



HARDENED PRECISION SCREW DRIVERS



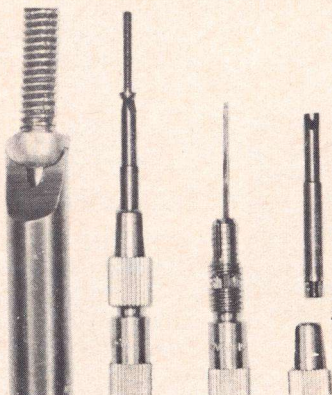
Code No.	Price per set	Price per box of 12 sets
52-490-006	\$4.95	\$48.00

DESCRIPTION: Heavy Duty Set consists of 6 Screw Drivers for screws from the smallest to #8 screw.

Blades are hardened tool steel. Set comes in handy plastic case.



POSITIVE-HOLD SCREW DRIVER SET

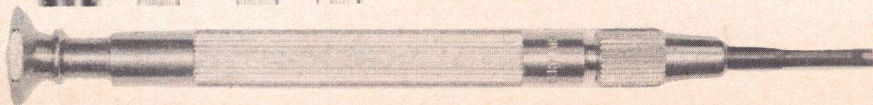


These screw drivers hold **non magnetic screws** as well as all other small screws for insertion into deep or non accessible holes and other hard to reach places. The head of the screw is positively locked to the screw driver and will stay locked until released. Knocks or shock will not loosen it.

A set of 3 of these screw drivers covers the range from 0-80 to $2/32$.

Screw driver blades are $1/16''$, $1/8''$ and $3/32''$ wide.

Code No.	Description	Price per Set
52-490-003	3 Screw Drivers with blades $1/16''$, $1/8''$ and $3/32''$ wide in Wooden Case.	\$15.00





AUTOMATIC CENTER PUNCH

SPECIAL FEATURES

Made from chrome alloy steel. Fully hardened. Adjustable for different materials.

Code
52-500-005



Price each
Set of 5
\$6.00



CENTER AND DRIVE PIN PUNCHES

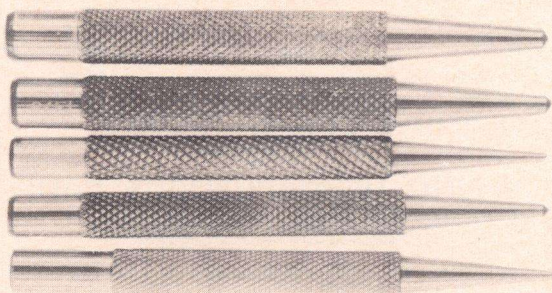
SPECIAL FEATURES

Chrome alloy steel. Polished shanks. Fully hardened and tempered. Positive grip knurling.
AVAILABLE IN SETS OF 5.



CENTER PUNCHES

Sold in Sets of 5



**Bright finished
Hardened
Knurled
Finger Grip**

Code
No.
52-500-015

Description

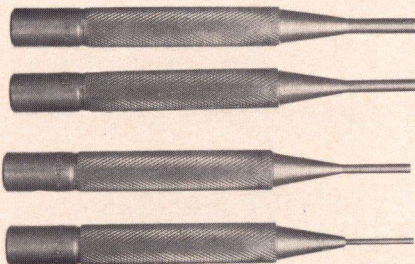
Set of 5 Center Punches (3 $\frac{3}{4}$ " long, $\frac{3}{8}$ " body). Point sizes $\frac{3}{64}$ ", $\frac{5}{64}$ ", $\frac{7}{64}$ ", $\frac{9}{64}$ " and $\frac{11}{64}$ ".

Price per
Set of 5
\$1.75 per set



DRIVE PIN PUNCHES

Sold in Sets of 4



**Bright finished
Hardened
Knurled
Finger Grip**

Code
No.

Description

52-500-100 Set of 4 Drive Punches (4" long, $\frac{3}{8}$ " body). Point sizes $\frac{2}{32}$ ", $\frac{3}{32}$ ", $\frac{4}{32}$ " and $\frac{5}{32}$ ".

52-500-200 Set of 4 Drive Pin Punches (4" long, $\frac{3}{8}$ " body). Point Sizes $\frac{6}{32}$ ", $\frac{7}{32}$ ", $\frac{8}{32}$ " and $\frac{10}{32}$ ".

Price per
Set of 4

\$2.50 per set

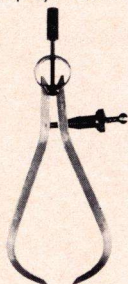
\$2.50 per set



SPRING CALIPERS — SPRING DIVIDERS

SPECIAL FEATURES

Quick adjustment over the range of the calipers by means of self-locking split-nut. Centrally located adjustment screw. Legs well balanced and uniform tension. Practically no torsion or side play. Quick and positive adjustment. Polished natural steel finish.

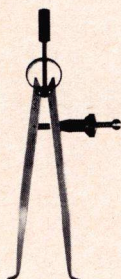


OUTSIDE SPRING CALIPERS

SPECIAL FEATURES

Fully hardened and tempered joints, springs and washers. Ends fully rounded. Meets Fed. Spec. Type II, Class I.

Code No.	Size	Price Each	Price Per Box of 12
52-105-004	4"	\$3.50	\$39.00
52-105-006	6"	\$4.00	\$44.00



INSIDE SPRING CALIPERS

SPECIAL FEATURES

Fully hardened and tempered joints, springs and washers. Ends fully rounded. Meets Fed. Spec. Type I, Class I.

Code No.	Size	Price Each	Price Per Box of 12
52-107-004	4"	\$3.50	\$39.00
52-107-006	6"	\$3.75	\$44.00



SPRING HERMAPHRODITE CALIPERS

SPECIAL FEATURES

Fully hardened and tempered joints, springs and washers. Ends fully rounded.

Code No.	Size	Price Each	Price Per Box of 12
52-110-004	4"	\$3.50	\$38.00
52-110-006	6"	\$4.00	\$43.00

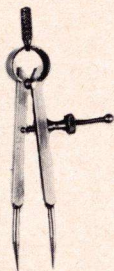


SPRING DIVIDERS

SPECIAL FEATURES

Fully hardened and tempered joints, springs, washers and points. High carbon steel legs deeply heat treated. Supplied with plastic point protector. Meets Fed. Spec. Type A, Class 2.

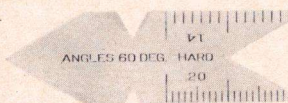
Code No.	Size	Price Each	Price Per Box of 12
52-115-004	4"	\$4.00	\$40.00
52-115-006	6"	\$4.50	\$48.50



CENTER GAUGES

Spring tempered steel with lapped edges and notches according to American National and U.S. 60 degree standards. Notches have clearance slots. Graduated 14ths, 20ths, 24ths and 32nds. Dull chrome finish.

Code No.	Price	Price Per Box of 12
52-505-001	\$2.00	\$22.50





PIN VISES

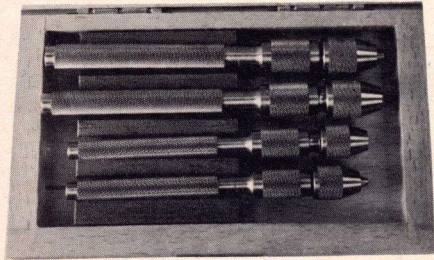
Finest Precision, High Quality Vises Available

Fowler Pin Vises are made from high quality alloy steel.
Useful for holding small parts and tools.

Handle is knurled for sure grip.

All jaws are precision ground and hardened.

Hole extends through handle for extra long objects.



Code No.
52-510-000

Description
Set of 4, 0-.187"

Price
\$6.75

52-510-005 Fitted wooden case available — **\$1.65**



POCKET SCRIBER

Aluminum knurled steel tubing body. Chuck for holding fully hardened and tempered scriber point. Point can be removed and housed within the body.



Code No.

Description

Price

Price Per
Box of 12

52-515-005 Aluminum body. Overall length 4 7/8". Blade length 2 3/8".

\$1.50

\$16.20



SINGLE POINT SCRIBER

Fine quality steel blade with fully hardened point. Chrome finished and knurled handle.



Code No.

Description

Price

Price Per Box of 12

52-515-015

Length: 6"

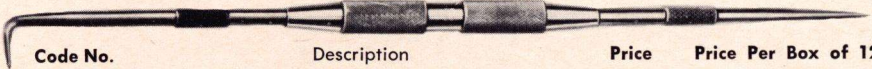
\$.85

\$9.00



REPLACEABLE POINT SCRIBER

Fully hardened and carefully tapered points. Made of fine quality steel with chrome finish. One straight point and one bent point.



Code No.

Description

Price

Price Per Box of 12

52-515-025

8 1/2" long

\$.90

\$10.00



HOOK SCRIBER

Fine quality steel and fully hardened blade. Straight scribing point at one end — hook at other end. Chrome finished and knurled handle.



Code No.

Description

Price

Price Per Box of 12

52-515-035

Length: 8"

\$.85

\$9.00



CARBIDE SCRIBER

An extra long Tungsten Carbide Point which is positively held in a pencil type handle. It can be retracted and carried in the pocket when not in use.



Code No.

Description

Price

Price Per Box of 12

52-515-045

Tungsten Carbide Scriber

\$2.25

\$24.00



PRECISION DIAL INDICATORS

THE COMPLETE LINE OF DIAL GAUGES

All Gauges Described Herewith Are in Accordance With (AGD) American Standard Specifications

SPECIAL FEATURES

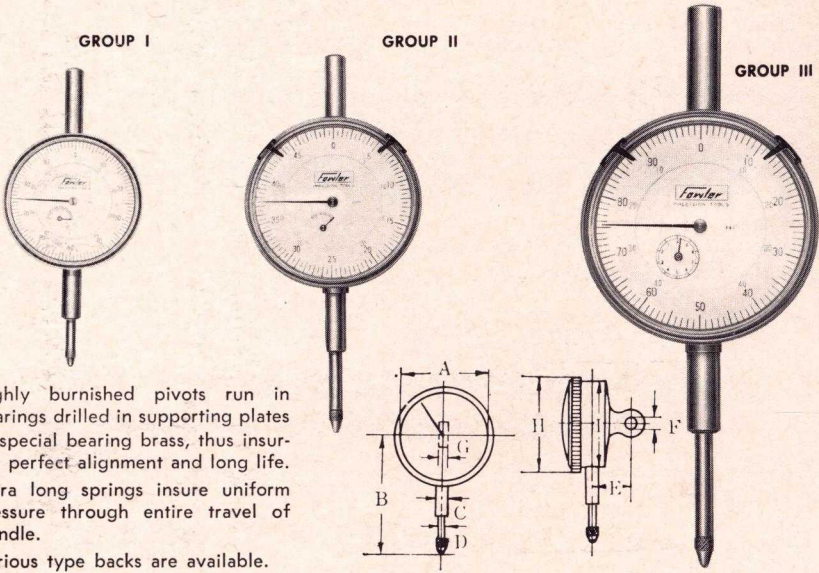
Fowler Dial Indicators are built in all the American Gauge Standard Groups. Meets A.G.D. Specifications.

Each group is supplied in .001", .0005", and .0001" graduations. Also some indicators are available in metric graduations. Dial as supplied have both continuous readings for direct measurement (in Black) and balanced readings for plus or minus readings in comparative work (in Red).

All dials have a revolution counter indicator. Cases are of forged brass, satin chromed.

Spindle rack, pinions, pivots, and contact points are made of hardened stainless steel to insure long wear and perfect accuracy.

Movement is mounted independently from case on rigid supporting plate, thus insuring perfect and permanent alignment.



Highly burnished pivots run in bearings drilled in supporting plates of special bearing brass, thus insuring perfect alignment and long life. Extra long springs insure uniform pressure through entire travel of spindle. Various type backs are available.

NOTE: All Dial Faces Are Graduated both "Continuous" in Black, and "Balanced" in Red

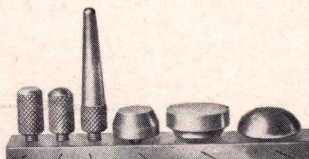
AGD GROUP I	Code No.	Range	Graduations	Dial Type	Special Features	Dimensions						Price
	52-520-005	0.500"	0.001"	1	Shockless Shockless	1 13⁄₁₆"	2 1⁄₄"	3⁄₈"	3⁄₄"	1⁄₄"	1⁄₄"	
52-520-010	0.125"	0.0005"	1	1 3⁄₈"		2 3⁄₈"	"	"	"	"		
52-520-020	0.025"	0.0001"	1	1 1⁄₈"		2 3⁄₈"	"	"	"	"		
52-520-025	0.05"		1	1 3⁄₈"		1 1⁄₈"	"	"	"	"		
AGD GROUP II	52-520-100	0.250"	0.001"	1	Plain Bearing	2 3⁄₈"	2 3⁄₈"	"	"	"	"	10.00
	52-520-105	0.500"		2		2 1⁄₈"	2 3⁄₈"	"	"	"	"	11.00
	52-520-110	1.00"		3		2 3⁄₈"	2 3⁄₈"	"	"	"	"	16.00
	52-520-115	1.00"		1		2 3⁄₈"	3 3⁄₈"	"	"	"	"	21.00
	52-520-120	2.00"	0.0005"	3	Jeweled	2 1⁄₄"	5"	"	"	"	3⁄₁₆"	32.80
	52-520-125	0.250"		3	2 3⁄₈"	2 3⁄₈"	"	"	"	"	12.00	
	52-520-130	0.025"		1	Shockless	2 1⁄₈"	2 3⁄₈"	"	"	"	"	18.00
	52-520-135	0.05"		1	Shockless	2 1⁄₈"	2 3⁄₈"	"	"	"	"	22.50
AGD GROUP III	52-520-200	0.500"	0.001"	1	Shockless	2 3⁄₈"	3 1⁄₄"	"	"	"	"	15.00
	52-520-205	1.00"	0.0005"	1		2 3⁄₈"	3 3⁄₄"	"	"	"	"	20.00
	52-520-210	2.00"	0.001"	1		2 3⁄₈"	3 3⁄₈"	"	"	"	"	32.00
	52-520-215	0.125"	0.0005"	2		2 3⁄₈"	2 7⁄₈"	"	"	"	"	14.50
	52-520-220	0.1"	0.0001"	1		2 3⁄₈"	2 1⁄₈"	"	"	"	"	35.00
METRIC	52-520-300	10mm	0.01mm	Cont.	Plain	2 1⁄₈"	1 1⁄₂"	.315	"	"	"	20.00
	52-520-305	5mm	0.001mm	Bal.	Shockless	2 1⁄₂"	2"	.315	"	"	"	37.50
	52-520-310	20mm	0.001mm	Bal.	Shockless	2 7⁄₈"	2 1⁄₄"	.315	"	"	"	60.00

ACCESSORIES FOR **Fowler** DIAL GAUGES

DIAL INDICATOR BACKS FOR GROUP II INDICATORS (ONLY)



CONTACT POINTS FOR DIAL GAUGE AMERICAN STANDARD THREAD

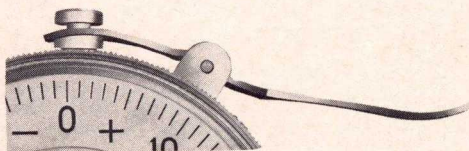


Code No.	52-525-035	52-525-040	52-525-045	52-525-050	52-525-055	52-525-060
Price:	\$1.00	\$1.00	\$1.50	\$1.50	\$1.50	\$1.50

52-525-065 — Complete Set of 6 Points in Threaded Base \$6.50

LIFTING LEVER ATTACHMENT

Code No. 52-525-070 Price \$2.00



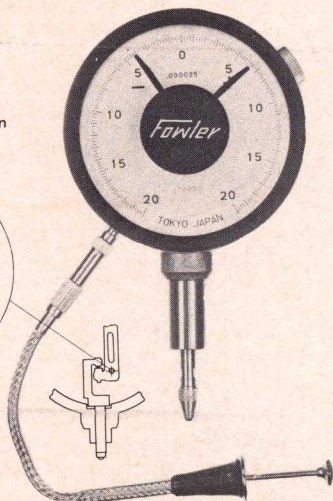
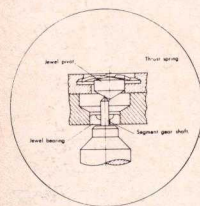
MULLIET HIGH PRECISION COMPARATOR

Reading in 25 or 50 Millionths of an Inch

Where comparative measurements of the highest accuracy are needed (.000025 to .000050 range) this gauge can be used either on special fixtures or on one of our comparator stands as illustrated on page 54g.

SPECIAL FEATURES

Special jewel bearing
eliminates lag of motion



THE SPECIALLY DESIGNED MOVEMENT moves on 9 jeweled bearings of special design which insure perfect contact and make the unit shockproof. The measuring motion is transmitted from the work contact point through a lever to a lapped sapphire cam operating against a microscopic ball bearing. Positive movement without any loss or lag of motion is thus established.

THE MEASURING SPINDLE has an "over range" of travel of .250" so as to give "work" extra clearance when in use. It also insures freedom from shock.

TOLERANCE HANDS can be individually set.

FINE ADJUSTMENT of the dial can be made while unit is in use, thus insuring the use of the full range of the unit.

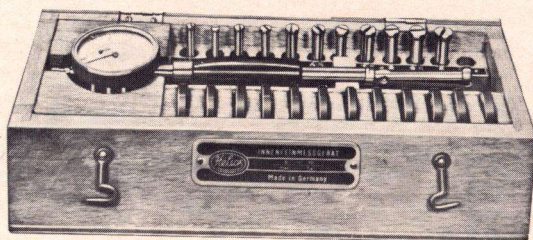
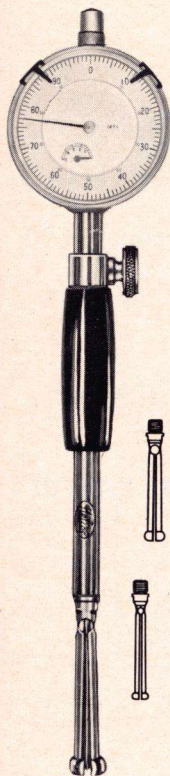
CABLE RELEASE for lifting of feeler point so as to insulate the unit from the heat of the hand.

Code No.	Graduation	Range	Total Travel	"D" (Stem Diameter)	Measuring Force	Price
52-530-005	0.000050"	± 0.002"	.140"	φ .375"	100 gr.	\$40.00
52-530-010	0.000025"	± 0.002"	.140"	φ .375"	100 gr.	\$60.00
52-530-015	0.001mm	± 0.05mm	3.5mm	φ 8mm	100 gr.	\$60.00



SMALL BORE GAUGES—HIGH PRECISION

Minimum Bore .0625 to .7812 (1/16"-25/32")



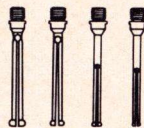
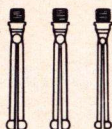
SPECIAL FEATURES

Helios small "Bore Gauges" are of the split ball type and are fitted with precision dial gauges calibrated in .001" or .0001". The pressure of hardened balls on the surface of the hole being measured is transmitted to the dial indicator.

The Bore Gauge can be set to a master ring gauge which is supplied for each of the measuring units size.

Each set is supplied in a fitted wooden case and provisions are made for holding the corresponding ring gauges.

Accurate internal measurements are obtained by setting the gauge to a micrometer or a ring gauge, then introducing it into the opening to be measured. The indicator hand on the dial will show the deviations from the set standard. By rocking the instrument in the bore the minimum diameter can be read at the reversal point of the indicator hand, thus giving the actual bore size.



Code No.	Range	Description	Price with .0001 gauge and setting rings
52-535-005	1/16"-5/32" .0625"-.1562"	Small Bore Gauge set with 8 measuring rods, one dial indicator and contact needles and setting rings.	\$260.00
52-535-010	5/32"-25/64" .1562"-.3750"	Small Bore Gauge set with 12 measuring rods, one dial indicator, and one contact needle, and setting rings.	\$270.00
52-535-015	3/8"-11/16" .375"-.7812"	Small Bore Gauge set with 8 measuring rods, one dial indicator, and one contact needle, and setting rings.	\$245.00

Note: Prices include fitted wooden case and setting rings



BORE GAUGES — HIGH PRECISION

For Bore Sizes from 0.25" - 16"

SPECIAL FEATURES

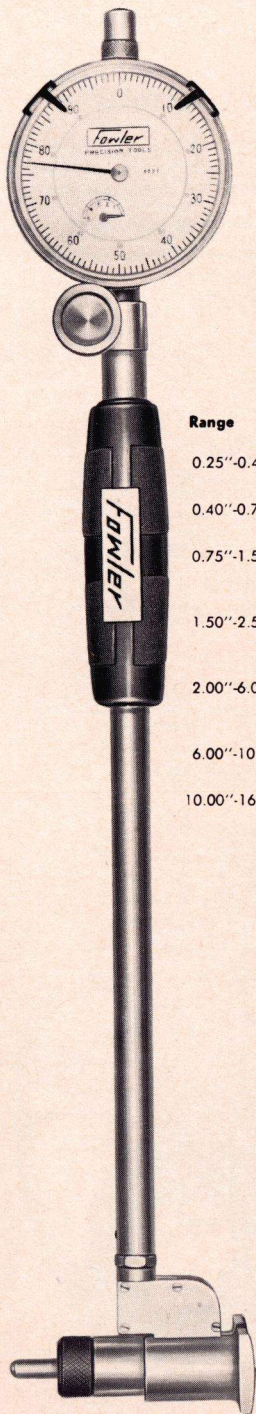
Fowler "Bore Gauges" are designed for fast, accurate measurements of bore diameters.

The desired diameter is obtained by inserting the correct gauge head into the head of the instrument. Accurate gauging is insured by positive pressure at the measuring pin and by the special 3 point contact design of the head.

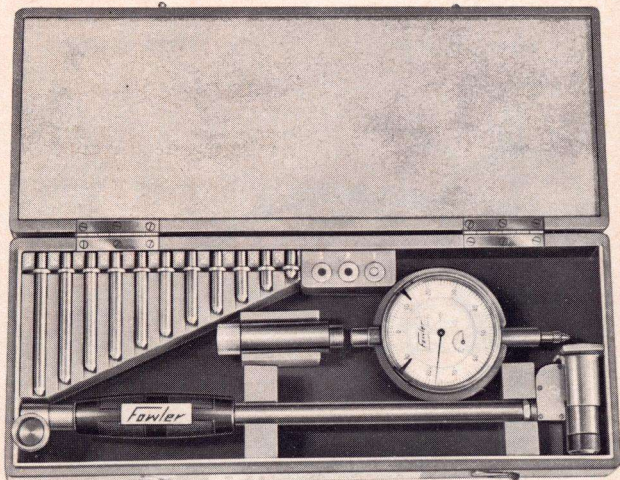
The pressure of the measuring rod and pin are transmitted to the dial indicator and accurate comparative measurements can be obtained from the readings of the dial indicator.

By rocking the instrument slightly in the instrument bore, the minimum diameter can be read at the reversal point of the indicator hand. This is the actual bore size.

Each set is supplied in a fitted case with all the necessary parts.



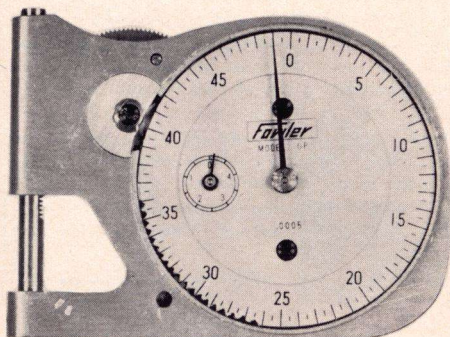
Range	Description	Code No.	Price with .001" gauge	Code No.	Price with .0001" gauge
0.25"-0.40"	Bore Gauge with 8 gauge heads, dial gauge, and key.	52-540-005	\$50.00	52-540-010	\$58.00
0.40"-0.76"	Bore Gauge with 9 gauge heads, dial gauge, and key.	52-540-015	\$48.00	52-540-020	\$56.00
0.75"-1.50"	Bore Gauges with 8 gauge heads, 2 rings, bore gauge, and key.	52-540-025	\$45.00	52-540-030	\$54.00
1.50"-2.50"	Bore Gauge with 6 gauge heads, 2 rings, bore gauge, and key.	52-540-035	\$43.00	52-540-040	\$52.00
2.00"-6.00"	Bore Gauge with 11 gauge heads, 2 rings, bore gauge, and key.	52-540-045	\$49.00	52-540-050	\$60.00
6.00"-10.00"	Bore Gauge with 9 gauge heads, dial gauge, and key.	52-540-055	\$73.00	52-540-060	\$80.00
10.00"-16.00"	Bore Gauge with 13 gauge heads, dial gauge, and key.	52-540-065	\$78.00	52-540-070	\$85.00





POCKET THICKNESS GAUGE

A handy pocket gauge of less than two ounces in weight — ideal for measuring thickness of paper, leather, sheet metal, rubber, etc.



SPECIAL FEATURES

Very small in size, 2.4"x1.9"x0.43" and weighs under two oz. — About the size of a watch. Has a range of .500" in 1/2 thousandths.

Can be easily adjusted to zero.

Measuring surfaces are hardened, ground, and lapped for long-time accuracy.

Code No		Price
52-545-000	In Inches	\$18.50
52-545-001	In Metric	\$20.00



DIAL THICKNESS GAUGES

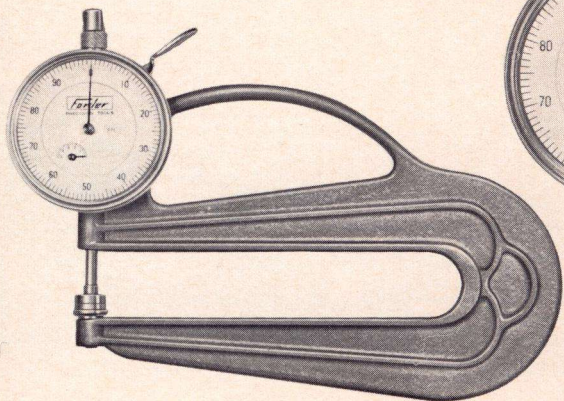
A precision built instrument of exceptionally high quality. **Considered a must where accuracy is demanded.** For use in measuring thicknesses of paper, cellophane, plastic film and metal plates. A specially built gauge mounted in a hand-grooved stand with a thumb release mechanism.

SPECIAL FEATURES

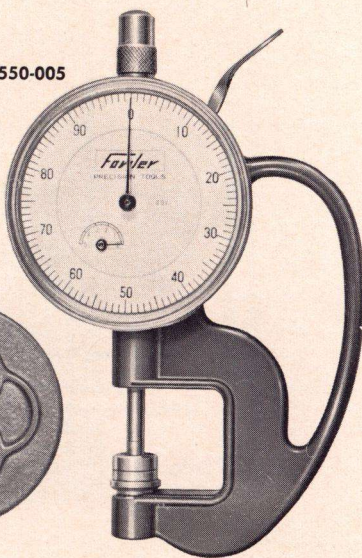
- Dull-chrome plated Dial Indicator case.
- Enameled frame.
- Measuring faces of hi-grade tool steel, hardened, ground and lapped for accuracy.
- Spindle of hardened stainless steel.
- Reading direct 0-100 (with revolution counter).
- Supplied in a deluxe velvet-lined case.
- Clear black graduations in .001".

Code No.	Range	Throat Capacity	Value of Graduations	Price
52-550-005	.5"	1"	0.001	\$12.50
52-550-010	.5"	4 3/4"	0.001	\$15.00

CODE 52-550-010



CODE 52-550-005



Fowler -VERDICT DIAL TEST INDICATORS

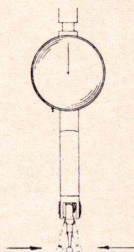
The Leading and Most Complete Line of Dial Test Indicators Available

Functional design, sensitive response, guaranteed repeatability and long life are built into all Fowler-Verdict Indicators. The unique design incorporates a one-piece indicator body and an easily removable cover plate.

Two types of Indicators are available — The "AUTO TEST" type features the automatic reverse type which facilitates reading "Up" or "Down" from zero without stopping to set the reverse lever.

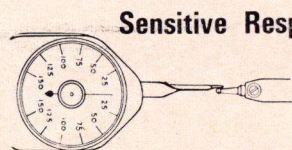
The "Standard" line of Dial Indicators combines superb quality and accuracy with low cost.

THE VERDICT FULLY JEWELLED DIAL TEST INDICATOR



Shock Proof Stylus

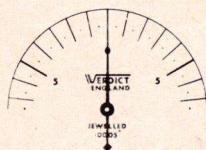
A spring loaded ratchet stylus which prevents damage to the bearings if accidentally knocked or dropped is fitted to all of our Two-Way action indicators, i.e. Code 52-560-025, 52-560-010, 52-560-015, 52-560-005, 52-560-020.



Sensitive Response

A light but positive force on the stylus point produces a quick effortless response of the indicator pointer. Below we list the force required to produce one-quarter of a revolution of the indicator hand.

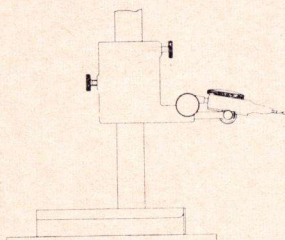
Code	Force in grams
52-560-025	10
52-560-010	16
52-555-025	8
52-560-015	12
52-560-005	8
52-560-020	11
52-555-015	15
52-555-020	4



High Repeat Accuracy

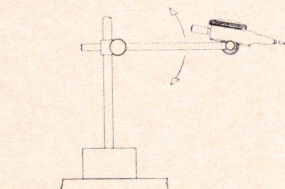
When properly supported, an indicator will show an identical reading each time a measurement is repeated.

Application of a Dial Test Indicator



CORRECT.

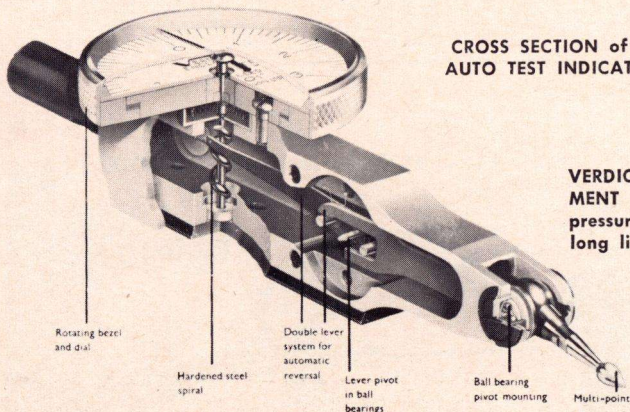
A properly designed stand with a positive clamping arrangement.



INCORRECT.

Errors can occur when using make-shift and unstable stands.

CROSS SECTION of the AUTO TEST INDICATORS



Rotating bezel and dial

Hardened steel spiral

Double lever system for automatic reversal

Lever pivot in ball bearings

Ball bearing pivot mounting

Multi-point

VERDICT LOW FRICTION MOVEMENT assures low measuring pressure, extreme accuracy and long life.

FOWLER-VERDICT

STANDARD HIGH PRECISION DIAL TEST INDICATORS

A Comprehensive Line of Indicators Affording Easy Accurate Reading Under All Conditions

SPECIAL FEATURES

May be mounted by means of dovetail or jig borer attachment as well as by regular holder, thus providing maximum versatility.

Friction contact point swivels through 180°.

Lever and crown movements, plus the use of **jeweled bearings**, insure exceptional sensitivity and repetivity.

Adjustable dial for zero setting.

Each instrument is furnished complete with clamp, adaptor, and universal holder, and is packed in a fitted case.



Code 52-555-005 —

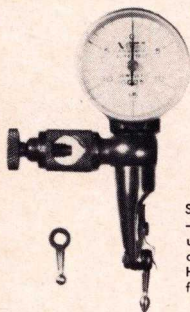
Popular price Indicator — rugged accurate construction — small dial in .0005". Complete with universal holder, collet rod, dovetailed holder and spare stylus in fitted plastic case.

"Long Reach"
Indicator



**CODE
52-555-025**

Easy to read open dial ball-bearing construction, fully jeweled. Long reach 0.032 stylus. Supplied complete with universal holder, collet rod, and spare stylus in fitted metal case.

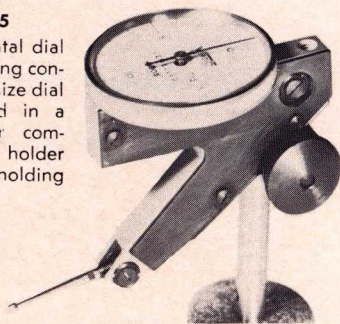


Super Test Model

Super Test Code 52-555-010 — Jeweled — Most Popular Design — Supplied complete with Universal Holder and Spare Stylus in fitted metal case.

Code 52-555-015

Easy to read horizontal dial Jeweled — Ball bearing construction — Medium size dial in .0005". Supplied in a cardboard container complete with dovetail holder and 1/4" diameter holding rod.



AVAILABLE MODELS AND PRICES

Code No.	Dial Reading	Value of Graduations	Range in Inches	Dial Diameter	Jeweled	Length of Stylus	PRICE
52-555-005	0-15-0	.0005	.030	1"	No	.306"	\$17.50
52-555-010	0-15-0	.0005	.030	1"	Yes	.375"	\$21.80
52-555-015	0-10-0	.0005	.020	1 1/2"	Yes	.844"	\$34.50
52-555-020	0-40-0	.001	.080	1 1/2"	Yes	3.376"	\$34.50
52-555-025	0-30-0	.0005	.060	2"	Yes	1.028"	\$29.40

Code 52-555-020

Fully visible horizontal dial — jeweled — Ball Bearing construction — medium size dial in .001". Supplied in a cardboard container, complete with a dovetail holder and 1/4" diam. holding rod.

"EXTRA LONG REACH" INDICATOR



Featuring the New "Automatic Reverse" Without Reversing Lever

SPECIAL FEATURES

A double lever movement is incorporated in all of these models which enables the indicator to read in a clockwise direction regardless of the direction at which pressure is applied to the stylus. **No direction lever is necessary.**

May be mounted by means of dovetail or jig borer attachment as well as by regular holder, thus providing maximum versatility.

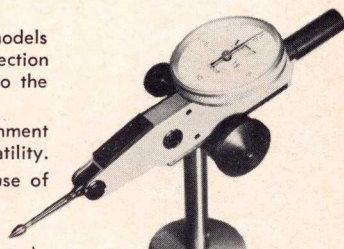
Friction contact point swivels through 180° without the use of directional lever.

Stylus supplied is pear shaped, compensating type.

Double lever movements, plus the use of **jeweled bearings**, insure exceptional sensitivity and repetivity. **Only 5 grams of pressure required.**

Adjustable dial for zero setting. Shock proof.

Stylus are mounted on ball bearings.



52-560-005

Small dial in .0005"

Fully jeweled

Each instrument is packed in fitted metal case — including dovetailed clamp, height gauge adaptor and spare stylus. Except the 52-560-025 model, which is supplied only with dovetail clamp and is packed in plastic case.



52-560-010

Small dial in .0001"

Fully jeweled

AVAILABLE MODELS AND PRICES

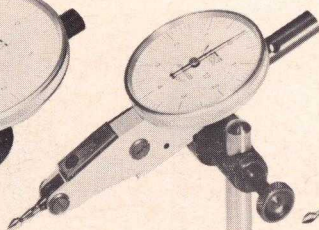
Code No.	Dial Reading	Value of Graduations	Range in Inches	Dial Diameter	Jeweled	Length of Stylus	PRICE
52-560-005	0-10-0	.0005	.020	1 1/8"	Yes	.830"	\$26.00
52-560-010	0-4-0	.0001	.008	1 1/8"	Yes	.416"	\$33.00
52-560-015	0-4-0	.0001	.008	1 3/8"	Yes	.416"	\$35.00
52-560-020	0-4-0	.00005	.008	2"	Yes	.416"	\$36.00
52-560-025	0-4-0	.0001	.008	1 1/8"	Yes	.416"	\$27.50
52-560-030	0-15-0	.001	.030	1 1/8"	Yes	1.100"	\$27.00



52-560-020

Large dial in .00005"

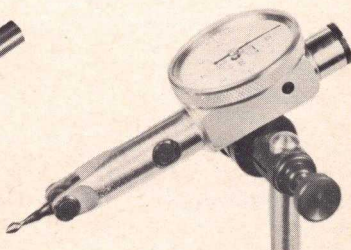
Fully jeweled



52-560-015

Medium dial in .0001"

Fully jeweled

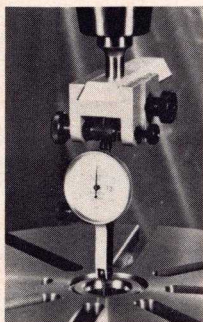


52-560-025

Small dial in .0001"

Fully jeweled

ACCESSORIES FOR **Fowler** -VERDICT DIAL INDICATORS



Code No.	Description	Price
52-565-004	Centering attachment $\frac{3}{8}$ " D Shank	\$34.00

This attachment provides an economical and simple method for the rapid location of holes. In addition the reversible action of the indicator also enables the checking of external work. The contact point of the indicator is centralized with the spindle of the machine by means of an adjustable screw with lock nut, which enables the indicator, after initial setting, to be removed (if required) from the attachment and replaced without setting the centre. A frictional holder also permits the indicator to be positioned through 90°. Setting is achieved by releasing the knurled locking screw partially tightened, which permits final setting to be carried out against frictional pressure thereby eliminating the possibility of over-running the desired final setting.

Full travel along dove-tail slide is $5\frac{1}{2}$ ".

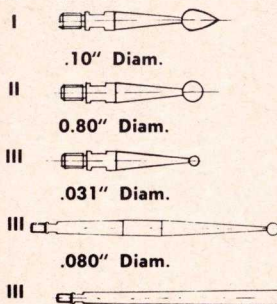
Code No.	Description	Price
52-565-005	Jointed Holders with Dovetail Adaptor	\$10.50
52-565-010	$\frac{1}{4}$ " x $\frac{1}{2}$ " universal holder	\$ 2.75
52-565-015	$3/16$ " x $5/16$ " universal holder	\$ 2.75
52-565-020	Jig borer attachment	\$ 3.50
52-565-025	Universal dovetail clamp	\$ 3.85
52-565-030	Height gauge adaptor $1/4$ " x $7/16$ "	\$ 2.00
52-565-035	Height gauge adaptor $3/16$ " x $5/16$ "	\$ 2.00
52-565-040	Height gauge adaptor .285" x .393"	\$ 2.00
52-565-045	Height gauge adaptor .175" x .312"	\$ 2.00
52-565-050	Body clamp for use with 52-555-010 Model Dial Indicator	\$ 3.75

STYLUS FOR FOWLER-VERDICT DIAL INDICATORS

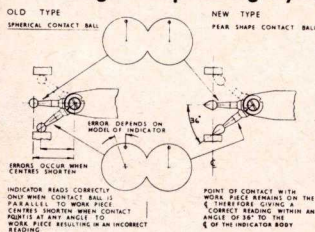
Code No.	Type	Description	Indicator Used For	Ball Diam.	Length of Stylus	Price
52-567-005	I	Pear Shaped Compensating Stylus	T8	.115"	.830"	\$2.50
52-567-010	II	Ball Shaped Stylus	T8	.080"	.830"	\$2.50
52-567-015	I	Pear Shaped Comp. Stylus	T500-T7-T5-T4A	.115"	.416"	\$2.50
52-567-020	II	Ball Shaped Stylus	T500-T7-T5-T4A	.080"	.416"	\$2.50
52-567-025	III	Ball Shaped Stylus	T500-T7-T5-T4A	.031"	.416"	\$2.50
52-567-030	I	Pear Shaped Compensating Stylus	"C"	.115"	.306"	\$2.50
52-567-035	II	Ball Shaped Stylus	"C"	.062"	.306"	\$2.50
52-567-040	III	Ball Shaped Stylus	"C"	.031"	.306"	\$2.50
52-567-045	I	Pear Shaped Compensating Stylus	"SP"	.115"	.375"	\$2.50
52-567-050	II	Ball Shaped Stylus	"SP"	.062"	.375"	\$2.50
52-567-055	III	Ball Shaped Stylus	"SP"	.031"	.375"	\$2.50
52-567-060	II	Ball Shaped Stylus	T15	.080"	.844"	\$5.50
52-567-065	III	Ball Shaped Stylus	T15	.031"	.844"	\$5.50
52-567-070	II	Ball Shaped Stylus	T17	.080"	3.376"	\$7.50

Note: Type II and Type III Stylus are also available in Tungsten Carbide at \$5.00 each for all Models except 52-555-020 which is \$10.00.

Type



Angle Compensating Stylus



52-565-050

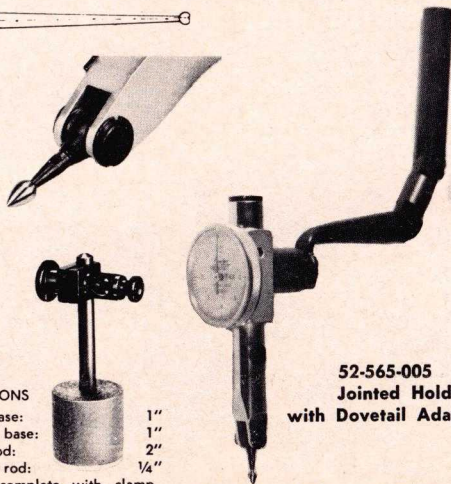
A compact universal permanent magnetic stand. Its small size and exceptional magnetic power affords maximum rigidity and enables you to mount indicators in tight places.

Price \$5.00

SPECIFICATIONS

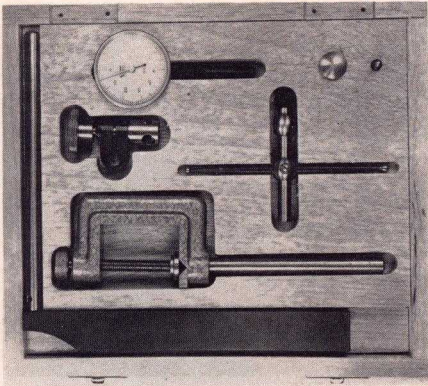
Height of base: 1"
Diameter of base: 1"
Height of rod: 2"
Diameter of rod: $\frac{1}{4}$ "
Furnished complete with clamp

52-565-005 Jointed Holder with Dovetail Adaptor



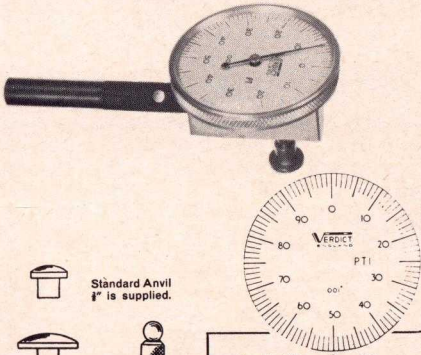
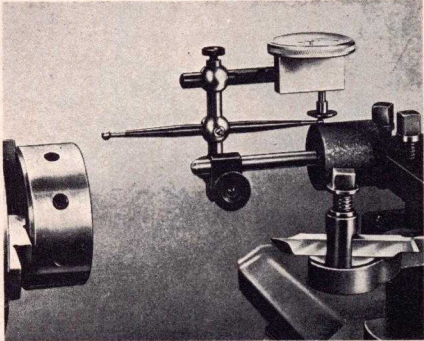
Fowler -VERDICT UNIVERSAL TEST SET

A universal heavy duty Dial Test Indicator in thousandths of an inch with 6" tool post holder, upright spindle, and gauge rod. Packed complete in fitted wooden case.



Simple, reliable and easy to use, the Universal Test Set will overcome many checking difficulties in your work shop. Consists of a back plunger type indicator, tool post holder and Swinging Arm Attachment, this being especially useful for checking bores up to a depth of approximately 1 1/2".

Checking a component with the Shop Set without removing the toolbit.



Standard Anvil 1" is supplied.

Mushroom Anvil 1/4" or Ball Anvil 1/4" are optional extras.

SPECIFICATIONS

Code No.	Diam.	Reading	Graduations	Range	Price
52-570-000	1 3/8"	.001"	0—50—0	.1"	\$37.50

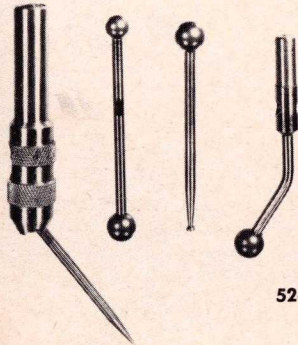


CENTER FINDER (Wiggler)

To find accurately position of Tool Spindle in relation to work surfaces, layout lines, holes, slots, etc.

SPECIAL FEATURES

Set consists of our interchangeable attachments and special chuck — Needle point attachment, Ball contact attachment (.250" diam.), Disc contact attachment (.100" diam.), Offset Indicator Holder.



Code No	Description	Price	Price per box of 12
52-575-005	Center Finder—Complete Set with Four Attachments	\$3.50	\$36.00



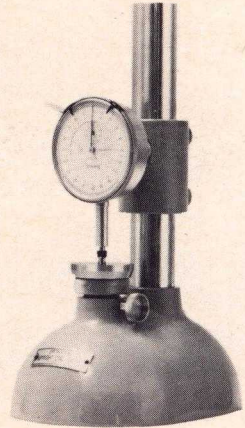
GAUGE STANDS

FOR POSITIONING DIAL INDICATORS OR AS A SURFACE GAUGE
AND FOR TRANSFERRING MEASUREMENTS BY TEST INDICATORS

INSPECTOR'S DIAL BENCH GAUGE STAND

Inspectors' Dial Bench Gauge Stand with sliding head and table.
Where utmost accuracy and rigidity is desired in order to secure maximum accuracy this bench stand is a necessity. Capacity 5" from the base. Ground and lapped table is adjustable vertically by a micrometer screw. Diameter of table is 1 3/4". Diameter of column is 1 1/2".

Code No.	Description	Price
52-580-005	Gauge Stand with 52-520-220 Dial Indicator (.100" Range in .0001") and cable release. Unit is packed in specially fitted wooden case.	\$78.00



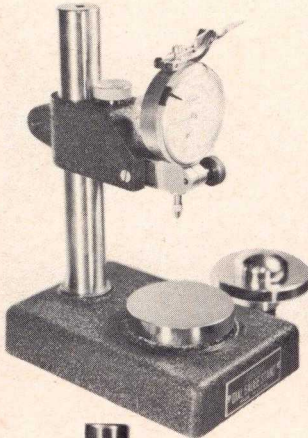
52-580-005

PRODUCTION DIAL BENCH STAND

This very versatile Gauge Stand is furnished with two anvils, as shown. Has a micrometer screw movement for fine adjustment. It is suitable to be used with Dial Indicator Gauges or Electronic "Plunger" Probes.

Ground and lapped table is 2 3/8" in diameter.

Capacity 4" from the base, diameter of column is 1".



Code No.	Description	Price
52-580-010	Gauge Stand Only.	\$40.00
52-580-015	Extra Serrated Anvil for above.	\$ 7.50
	Unit is packed in specially fitted wooden case.	

NOTE: The 52-580-010 Stand can be used with any Group I and Group II Indicators. If ordered together, the Lifting Lever is included at no extra charge.

It can also be used with 52-520-220 Indicator (cable release included). See Page 44G. for prices on Indicators.

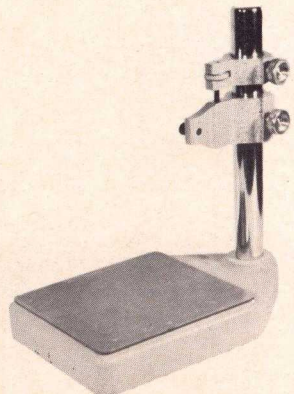
**52-580-010 Stand being
used in connection with
the 52-530-005 Mulliet Comparator**



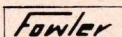
ECONOMY DIAL GAUGE STAND

Stand (only) with Vertical Capacity of 6 1/2" from the base. Rectangular semi-steel table 5 1/2" x 4 1/4". 1" diameter vertical column, movable arm with fine adjustment screw.

Code No.	Description	Price
52-580-020	Gauge Stand Only. Packed in individual carton.	\$27.00



52-580-020



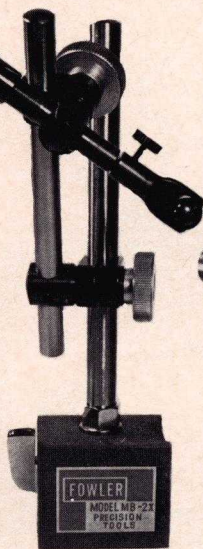
MAGNETIC STANDS

**FOR POSITIONING DIAL INDICATORS OR AS A SURFACE GAUGE
AND FOR TRANSFERRING MEASUREMENTS BY TEST INDICATORS**

52-585-005

Magnetic Base with Universal Arm. Will handle all size Indicator holders, etc. Attaches to milling machine, lathe, grinder, etc. Exerts pull of more than 75 lbs. On and off switch is conveniently located. Quick adjustment clamp and universal holder with long extended arm. Overall height 9.5".

\$13.50



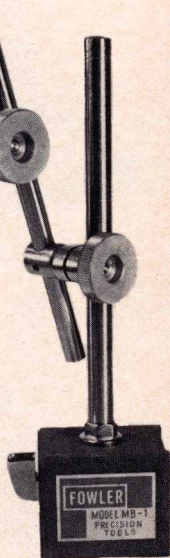
52-585-010

52-585-010

Extra Heavy Base (85 lbs. pull), similar to above, with MICROMETER adjustment. This base is fitted with a fine micrometer screw, universal clamp for fine adjustment of Dial Indicators, electronic Probes, etc. Overall height 9.5". **Price includes Fine Adjustment Holder.**

\$16.50

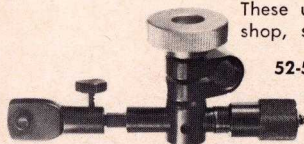
Above prices include wooden cases.



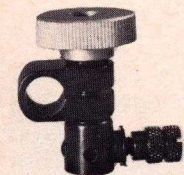
52-585-005

EXTRA CLAMP ASSEMBLIES

These units can be used to make up many useful tools around the shop, such as indicator holders, scribe holders, lens holders, etc.



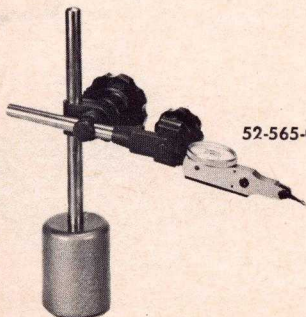
52-590-005 Clamp Assembly with MICROMETER fine adjustment screw as supplied with MB-2. Magnetic Stand. .350" Diameter hole for clamping on arm. **\$4.50**



52-590-010 Clamp Assembly with MICROMETER fine adjustment screw as supplied with MB-2. Magnetic Stand. .470" Diameter hole for clamping on arm. **\$5.00**

52-590-020 Universal Clamp Assembly as supplied with MB-1 unit. .350" diameter hole for clamping on arm. **\$2.50**

52-590-025 Universal Clamp Assembly as supplied with MB-1 unit. .470" diameter hole for clamping on arm. **\$2.50**



52-565-050 Minormag Stand — A miniature magnetic stand with a universal holder which makes an easy application for positioning dial test indicators to machine tools, etc. Supplied with a disc on the bottom for neutralizing the magnet when not in use. **\$5.00**

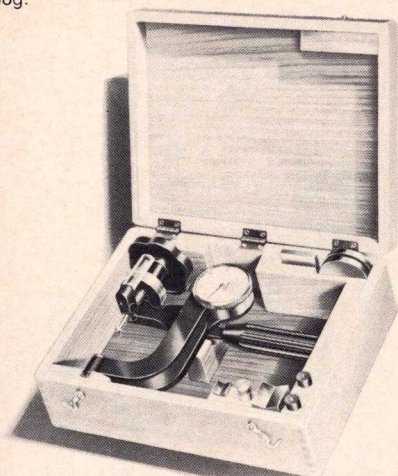


PORTABLE HARDNESS TESTERS

Practical Hardness Testing for Industry

GENERAL FEATURES

- Precision Built Instruments for on-the-spot hardness testing of bars, sheets, odd-shaped parts.
- Read directly in the Rockwell Scales.
- Easy to operate, even by inexperienced personnel.
- Fool-proof design gives years of trouble free, dependable service.
- Lightweight, portable, quick and accurate.



NORMAL TESTER

Description and Special Features

Used in testing flats, rounds, and assembled parts. Reads directly in Rockwell B and C scales. All other scales may be used through use of our conversion table. Standard equipment includes diamond penetrator, 1/16 carbide ball penetrator, flat anvil, V anvil, extension and adaptor, two hard steel test blocks, and one brass test block, all fitted in deluxe wooden case. All models equipped with necessary extensions and anvils. Weight (Code 52-590-001) — 1 1/2 lbs.

Model No.	Capacity	Throat Depth	Price
52-595-001	0.1"	1"	\$299.50
52-595-002	0.2"	2"	\$349.50
52-595-004	0.4"	2"	\$399.50



SUPERFICIAL TESTER

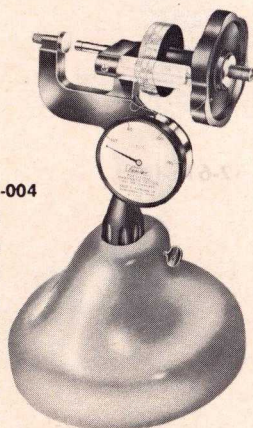
Description and Special Features

Similar in construction to "Normal Testers." Dial graduated to give readings in the N and T Rockwell scales. Used for testing rounds and flats of case hardened, thin or soft materials. Weight (Code 52-595-011) — 1 1/2 lbs.

Model No.	Capacity	Price
52-595-011	0.1"	\$299.50
52-595-012	0.2"	\$349.50
52-595-014	0.4"	\$399.50

EXTRA ACCESSORIES

	Code No.	52-595-001	52-595-002	52-595-004
Anvil, 1/8" or 1/4" raised flat		\$7.00	\$7.00	\$7.00
Ball Penetrator 1/8" diameter, carbide ball		9.00	9.00	9.00
Ball Penetrator, 1/4" diameter		12.00	12.00	12.00
Ball Penetrator, 1/2" diameter		14.50	14.50	14.50
Convex Anvil (to test curved surfaces)		9.00	12.00	14.00
Cylindrical Anvil (to test tubing)		9.00	12.00	14.00
Diamond Spot Anvil		30.00	30.00	30.00
Diamond Penetrator		30.00	30.00	30.00



THE  BENCH STAND 52-600-070 \$24.50

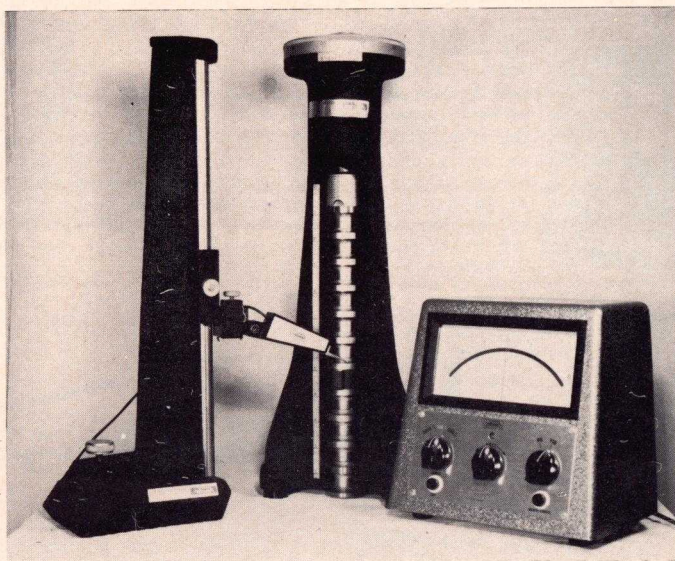
For All Models

THE NEW SUPER ACCURATE



ELECTRO COMPARATOR SYSTEM

For a small investment, this compact electronic gauging system enables your shop to achieve the highest accuracy possible in your inspection and gauging operations — measurements in millionths of an inch can be obtained with ease in seconds. Its repetitiveness and accuracy are truly amazing.



Code No.	Description	Price
52-605-000	"Fowler" ELECTRO COMPARATOR AMPLIFIER	\$150.00
52-605-610	"Fowler" ELECTRO COMPARATOR AMPLIFIER WITH PROBE	\$249.50
52-605-615	"Fowler" ELECTRO COMPARATOR AMPLIFIER WITH PLUNGER	\$265.00
52-610-000	"Fowler" ELECTRO PROBE	\$100.00
52-615-000	"Fowler" ELECTRO CARTRIDGE	\$120.00
52-620-014	"Fowler" 14" TRANSFER STAND	\$120.00
52-620-028	"Fowler" 28" TRANSFER STAND	\$175.00
52-580-015	"Fowler" GAUGE STAND	\$ 40.00

This new Super Accurate Electro Comparator System is described in the following pages.

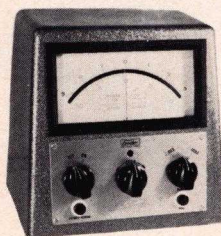
THE NEW SUPER ACCURATE



ELECTRO COMPARATOR SYSTEM

AT LAST — MODEL 52-605-000 Fowler AMPLIFIER Second Generation Solid State Electronic Gaging System that will give you precise comparative absolute measurement at reasonable cost! The instrument is calibrated at the factory. Once the instrument is calibrated a stable condition exists. Repeatability 100%.

SPECIAL FEATURES



Code No.
52-605-000

The 52-605-000 Fowler Amplifier is designed of the highest quality materials and consists of Standard Power Supply, Oscillator, Calibration Control Assembly and Indicating Meter which is capable of delivering unequalled accuracy.

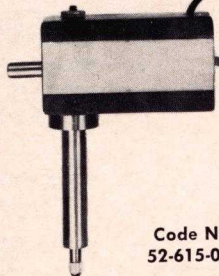
The 52-605-000 Fowler Amplifier also contains an auxiliary outlet for connecting other equipment such as light and/or sound indicating devices. This outlet can also be used for scopes, etc. It also comes equipped with three vernier adjustments at the back of the cabinet for the purpose of calibrating each of the three scales individually. This makes possible zeroing in on your master gage blocks if you so desire.



Code No.
52-610-000

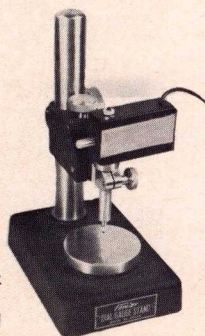
THE PROBE. This phenomenal probe has no frictional working parts such as pivots, slides, bearings, or any other mechanical watch works. This probe is also free of magnets or coils. Probe consists of simple but ingenious system using a steel reed. It is the direct action of this steel reed which results in the electronic meter read out.

The reed mechanism is captured mechanically so that it cannot exceed its elastic limit. The life of this gage head, therefore, is infinite. The accuracy is also assured by the simplicity of the mechanical to electronic definition. It has a repeatability of 100%.



Code No.
52-615-000

CARTRIDGE HEAD — Repeats to 100% and can be mounted on dial gauge stand or other fixtures. It is here shown mounted on our 52-580-015 Gauge Stand set up for comparative measuring of production parts.



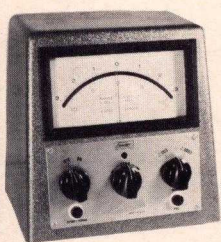
Code No.
52-580-015

CALIBRATION INSTRUCTIONS (Master Probe Only)

1. Set "0" Control Knob straight up.
2. Turn RANGE Switch to .003.
3. Select two (2) gage blocks .003" apart.
4. Set one of these gage blocks at "0" reading on the amplifier.
5. Without changing the position of the gage head, slide the other block under the gage tip and observe the reading.
6. Adjust the .003 screw driver slot at the back of the amplifier for full scale reading.
7. Repeat same performance for .001 scale and the .0003 using gage blocks with scale matching tolerances.

SPECIFICATIONS THE AMPLIFIER

Range Amplification	Smallest division
.003 (Black) 782	.0001
.001 (Red) 2240	.000050 (50 Mil)
.0003 (Black) 7820	.000010 (10 Mil)
Electrical Zeroing Range	$\pm .0003$
Power Required	115 V.A.C. 50-60 Cycle — 1 Watt
Allowable Voltage Variation	100 to 135
Warm Up Time	Instantaneous
Accuracy	Better than 2% of full scale
Stability	Over 4000 hrs. service without the need for electrical calibration
Drift	Less than 1% of range, independent of Gage Head variations due to temperature changes.
Case	Attractive rugged fibre glass cabinet with recessed meter and anodized escutcheon plate.
Reversing	Reversal switch allows selection direction of Indicator pointer.
Interchangeability of Probes	Probes can be quickly interchanged without the need for factory synchronization. Simply plug in or remove as desired. Each gage head and probe contains its own magnification adjustment.
Scale Switching	You can switch from scale to scale without the need to "re-zero" each time. Pointer IS AUTOMATICALLY locked in at proper position.



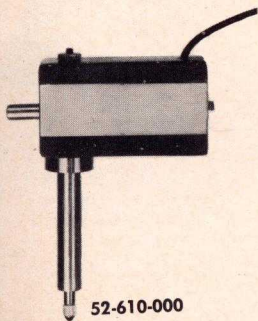
**Code No.
52-605-000**



52-615-000

THE GAGE HEADS

	Probe 52-610-000	Cartridge 52-615-000
Repeatability	100%	100%
Gage Pressure	20-30 grams	20-30 grams Adjustable up to 6 oz.
Total Gage Tip Travel	.040	.125"
Gage Tip Travel to Zero Position	.006	.006
Dimensions (Overall)	5/8x1 1/8x3 3/8	3/4" wide x 1 1/4" high x 2" long
Weight (approx.)	2 oz.	5 oz.
Length of Cable	42"	42"
Mourrining	Std. 1/4" hole with 1/4" mounting shoulder	Std. 3/8" O.D. Snout
Contact Point	Specially hardened steel-gold plated (unless otherwise specified) .4-40 therad	Standard hardened tip with 4-48 thread. Retractable by hand lever.



52-610-000

FOR ELECTRONIC TRANSFER STAND FOR ABOVE GAGE HEADS SEE PAGE 60G.



ELECTRO COMPARATOR-INDICATOR TRANSFER STAND

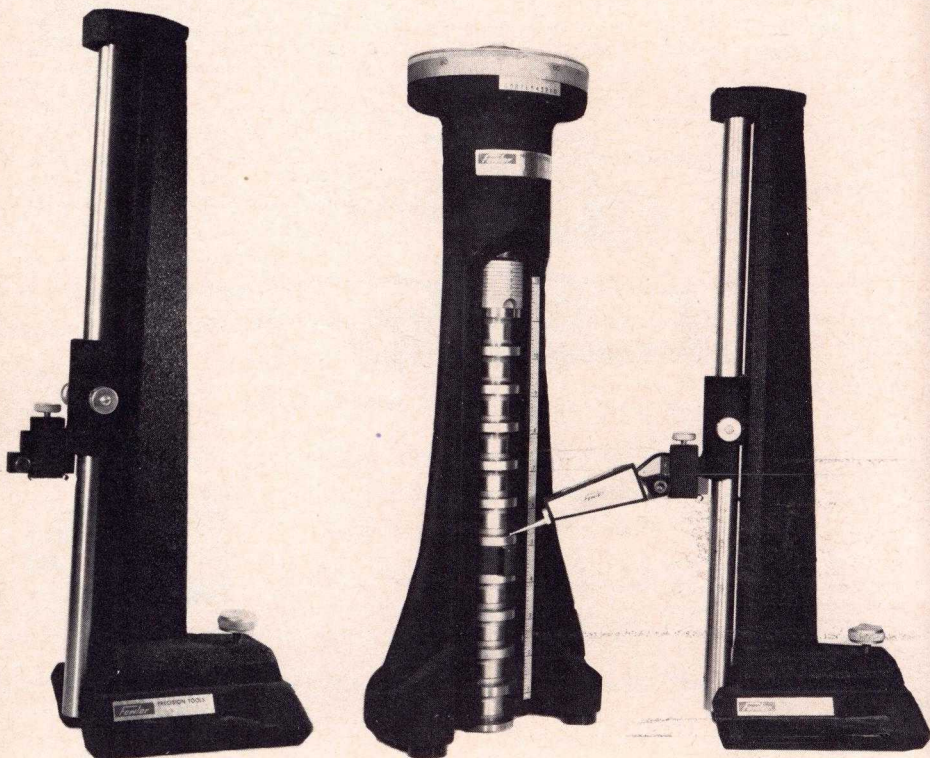
For Use With Any Electronic or Mechanical Indicator

The HTG "FOWLER" ELECTRO STAND is a sturdy, extremely stable, and easily adjustable base from which transferring of absolute comparative measurements can be effected with ease. Heights can be referred to Gauge Blocks and Height Micrometers by equipping these gauges with electronic probes or dial indicators.

Base of stand measures $3\frac{1}{2}'' \times 5\frac{3}{4}''$.

The micro-fine screw located at the base provides the fine adjustment to within a few millionths. **Friction free movement is insured by precision grinding and lapping of the vertical steel column.** Adjustments of the gauge are only on a vertical direction — The base rests on three ground and lapped carbide discs.

The stand has rapid preliminary positioning by moving the carriage on the ground and lapped "ways." It can be then clamped in position by a **DOUBLE LOCK** arrangement which insures rigid final setting — the final "Zeroing" is done by the micro-fine adjustment screw at the base of the gauge stand.



14" Model

Transfer Stand being used to pick up a height measurement from a "FOWLER" 12" Height Micrometer.

Code No.
52-620-014

"Fowler" 14" Capacity Gauge Comparator Stand with Micro Screw Adjustment on Base. Base measures $3\frac{1}{2}'' \times 5\frac{3}{4}''$.

52-620-028

"Fowler" 28" Capacity Gauge Comparator Stand with Micro Screw Adjustment on Base. Base measures $3\frac{1}{2}'' \times 5\frac{3}{4}''$.
Both units are packed in DeLuxe Fitted Case.

Basic Information on Measuring Microscopes

In order for the machinist and toolmaker who is not familiar with the use of Measuring Microscopes to understand their operation, we give herewith a general outline of the construction of this type of Microscope and the optical principles which are involved in their design.

A Measuring Microscope is a very simple and highly accurate means of measuring objects in a two-dimensional plane. The object is placed on a stage which is moved in two directions (north and south, east and west), and measurements are then taken by means of highly accurate micrometers reading in .0001".

This movement of the object is related to positioning the object in relation to cross hairs in the eyepiece (one on the horizontal position and one on the vertical position).

Magnifications generally range from about 20 power to as much as 100 power. At these high magnifications a very high degree of accuracy can be obtained visually.

Measurements of angles, such as those of cutting tools like end mills, milling cutters and taps, etc., can also be referred to the cross hairs of the Microscopes and then measured by means of a protractor which is an integral part of the eyepiece assembly on which the cross hairs are mounted.

Vertical measurement, such as the difference in height between the two steps on an object, can also be measured optically in these Microscopes if magnifications of 50 power or more are used. As the power of the Microscope increases, the depth of focus decreases, thus by critically focusing the image of the cross hair on one edge, and then moving on to focus it again on a second edge, the difference of depth can be read off from a dial indicator gauge which measures the up and down movement of the tube and lens assembly of the Microscope.

The above is a general outline of the uses of the Microscope. In order to better understand these uses, we also herewith outline the basic optical principles involved in the construction of Microscopes.

A compound Microscope is made up of two lens systems; one of which is called the objective lens, and the other one is the ocular or eye piece lens.

The objective lens forms the image of the object which is being viewed somewhere along the line of the Microscope tube. The ocular lens picks up this image and forms a second image a small distance above the top of the ocular, which image, in turn, is picked up by the eye.

The magnification of a Microscope is the result of multiplying the power of the objective by the power of the eyepiece. (For instance, a Microscope on which the objective is of 3 power and the eyepiece is of 10 power would have a total magnification of 30 power).

THE WORKING DISTANCE of a Microscope is the distance between the lowest component lens on the objective and the object being examined.

THE DEPTH OF FOCUS of a Microscope is the amount of depth of the object which is in sharp focus when viewed through the lens system of the Microscope.

THE FIELD of a Microscope is that area that is covered by the objective lens of the Microscope and is visible through the lens system. This is in exact relation to the power of the objective lens of the Microscope.

In our Series 100 Microscope and our PIL Series Microscopes, magnifications of the lens system are obtained by changing the objective. This has a resulting quality of changing the size of the field covered by the Microscope, and also changes the working distance between the objective and the object being viewed.

In our Series 200 Microscope, the objective is not changed, being used for all various magnifications. The change of magnification is obtained by changing the eyepiece which results in the size of field remaining constant at all magnifications. This is a highly desirable feature.

The above also results in having the working distance (distance between the objective lens and the subject) also remain pretty near constant.

The objectives and eyepieces used in our lens systems are highly corrected for optical as well as spherical aberrations. This means that the lens is so corrected that the various colored rays of light which have different wave lengths, and which together form the image, are so corrected in their transmission through the lens system that they are all brought to focus at the same point; thus insuring that a sharp image is formed. Low-priced Microscopes, such as those used as children's toys, do not have these optical qualities and therefore do not form sharp images which are essential for accurate measuring.

In closing, we want to point out that it is absolutely essential when using a Measuring Microscope that the instrument is properly focused. To insure this, the eyepiece should be first focused on the cross hair reticule until this is most closely and sharply visible. After the reticle is in sharp focus, the Microscope tube should be "Racked" up and down until the object is in sharp focus. If the eye is then moved from side to side on the eyepiece, there should not be any apparent motion of the image. If there is, the Microscope adjustments should be repeated until parallax is eliminated completely.



STANDARD TOOLMAKERS MEASURING MICROSCOPE

SERIES 100 52-635-000

This is an economy priced unit, designed for simplicity of operation, but built up to the same high standards of quality and design of our "Universal" unit.

It is ideal for precision layout work, measurement of holes, measurement of arcs, radii, inspection of forming or cutting tools, etc. By addition of available accessories, the versatility of this unit can be increased to that of the more expensive unit, if and when needed.

SPECIAL FEATURES

The Microscope has a standard magnification of 20X.

The eyepiece is mounted in a 0-360 vernier protractor reading to 10 minutes of arc, and is equipped with a cross hair reticle.

The optical system is of the highest optical quality, corrected for spherical and chromatic aberrations.

The image is erect and unreversed.

Accurate angular measurement on objects may be made. The eyepiece consists of a rotatable protractor scale 30 inches diameter and calibrated in degree from 0 to 360. In the center of the scale is a x10 Huygenian eyepiece which rotates with the scale. The eyepiece contains an accurately centered crossline graticule one of the diametrical lines of which provides the rotational reference position. Reading of object angles is made by taking the difference between two scale readings and a vernier on the fixed outer part of the eyepiece which enables readings to 10 minutes to be made.

Cross hair reticle is standard equipment.

Fine rack and pinion movement of the telescope tube.

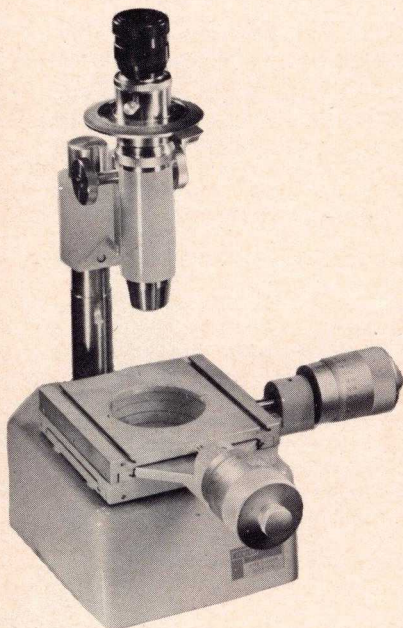
The stage measures 5" x 5" and moves on pre-loaded ball bearings - has a 2" x 2" movement (by using a 1" gauge block) - is equipped with glass plate and T ways for clamping accessories.

Extra large (2" diameter) micrometer heads with 1" travel reading in .0001" directly on the thimble. 2" longitudinal movements and transverse can be obtained by using a 1" gauge block.

Substage and surface illuminators are provided as an extra (the stage and base are provided with an opening for substage illumination).

A rotary measuring stage with 0-360° protractor is available as an extra.

Precision center support is also available as an extra.



Code No.

Description

Price

52-635-000	Microscope complete as described above with 20X magnification.	\$375.00
52-645-005	Rotating measuring stage with 0°-360° vernier protractor and T ways.	\$110.00
52-645-010	Center support swivel with center opening. Has inclination of 0°-20° and 3.5" capacity. Can be mounted directly on Microscope stage or on rotary measuring stage.	\$135.00
52-645-015	Surface illuminator with transformer and 2 extra miniature lamp bulbs. (This unit has provision for connecting the substage illuminator. Code 52-645-020)	\$15.00
52-645-020	Substage illuminator for attaching to 52-635-000 Microscope. This unit can only be used in combination with 52-645-015 Surface Illuminator which has a built in transformer. Supplied with 2 extra bulbs and a green and white condensing lens. 110 v.-60cy.	\$12.00
SERIES PIL		
52-645-025	4X Achromatic Objective to change magnification to 40X.	\$15.00
52-645-030	10X Achromatic Objective to change magnification to 100X.	\$20.00



52-645-015
Has Plug Connector
in base for 52-645-020



UNIVERSAL TOOLMAKERS MEASURING MICROSCOPE

SERIES 200 CODE 52-640-000

This Microscope has been carefully engineered to meet all of the needs of the machinist and toolmaker. With it the operator can check roundness and size of holes, spacing between centers, measure angles of arc and depth, inspection of surface finishes, forming and cutting tools, and general examination of miniature mechanical and electronic components. By the addition of a dial indicator gauge, measurements and depth can also be made.

SPECIAL FEATURES

The optical system is of the highest optical quality, corrected for spherical and chromatic aberration so as to render a clear and undistorted image.

Microscope has a standard magnification of 30X. The image is erect and unreversed.

Extra eyepieces available to change this magnification to 20X and 50X (50X is necessary for depth measurement).

Accurate angular measurement on objects may be made with GONIOMETER EYEPIECE. The eyepiece consists of a rotatable protractor scale 30 inches diameter and calibrated in degrees and numbered every 10th degree from 0 to 360. In the center of the scale is a X10 Huygenian eyepiece which rotates with the scale. The eyepiece contains an accurately centered crossline graticule one of the diametrical lines of which provides the rotational reference position. Reading of object angles is made by taking the difference between two scale readings and a vernier on the fixed outer part of the eyepiece which enables readings to 10 minutes to be made.

Cross hair reticle is standard equipment. Other reticles are available and can be interchanged.

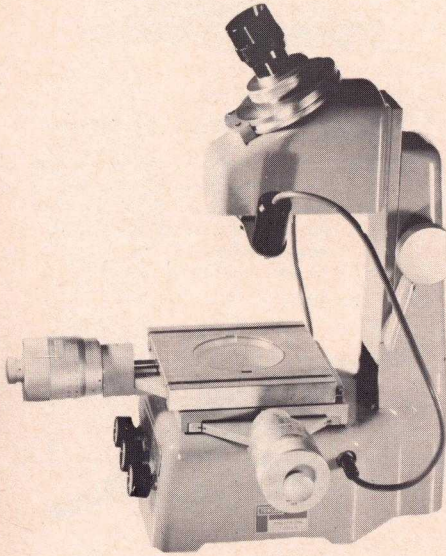
Fine rack and pinion movement of the telescope tube, with positive lock on the column.

The stage measures 5" x 5", moves on pre-loaded ball bearings, has a 2" x 2" movement (by using a 1" gauge block). Equipped with glass stage plate and T ways for clamping accessories.

Extra large (2" diameter) Micrometer Heads with 1" travel reading in .0001" directly on the thimble — 2" transverse and longitudinal movement can be obtained by using a 1" gauge block.

Green filtered sub-stage illuminator of adjustable intensity. Two light surface illuminator of adjustable intensity equipped with red and green filters.

Rotary measuring stage with 0°-360° is available as an extra. Precision center support also is available as an extra. It has an inclination of $\pm 0^{\circ}-20^{\circ}$ — Capacity of 3.5".



Code No.	Description	Price
52-640-000	Microscope complete as described above with 30X magnification.	\$635.00
52-645-005	Rotating measuring stage with 0°-360° vernier protractor and T ways.	\$110.00
52-645-010	Center support swivel with center opening has inclination of $\pm 0^{\circ}-20^{\circ}$ and of 3.5" capacity. Can be mounted directly on Microscope stage or on rotating measuring stage.	\$135.00
52-645-040	Eyepiece to change magnification to 20X.	\$40.00
52-645-045	Eyepiece to change magnification to 50X (this magnification is best for depth measurement).	\$45.00
SERIES PIL		
52-645-055	Fine 90° cross hair reticle in metal frame.	\$18.00
52-645-060	Reticle with 90° cross hairs and 20 concentric circles within 15 mm. — in metal frame.	\$18.00
52-645-050	Bracket to hold dial gauge indicator for depth measurement by the Microscope.	\$25.00
52-520-135	Shockless type dial gauge indicator graduated in 1/10,000 and 0.05" range.	\$22.50
52-520-305	Shockless type dial gauge indicator graduated in 0.001 mm. and 1 cm. range.	\$30.00
52-520-310	Shockless type dial gauge indicator graduated in 0.001 mm. and 2 cm. range.	\$55.00

FOWLER MEASURING MICROSCOPE COMPONENTS

Eyepieces and Objectives

Code No.	Description	Price
52-645-070	Special 10X focusable eyepiece with cross hair Reticle 52-645-065.	\$25.00



52-645-025	4X Achromatic Objective Standard Microscope Thread.	\$15.00
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52-645-030	10X Achromatic Objective Standard Microscope Thread.	\$20.00
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Reticles

52-645-065	Fine 90° cross hair reticle for microscope focusable eyepieces. Available in 19 mm or 21 mm.	\$5.00
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Microscope Stage

52-645-075	Stage 5"x5" with 2"x2" movement (with 1" gauge block) on preloaded ball bearings. (Will hold micrometers with 1/2" shafts.) Has standard 1/2" sockets for attaching Micrometer Heads.	\$125.00
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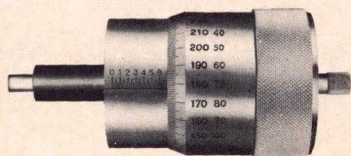
Price does not include Micrometer heads.



Micrometer Head

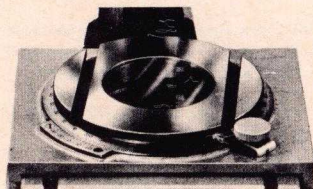
For Use With Above Stage

52-210-015	.2" diameter thimble with 1" movement—graduated in 1/10,000" reading directly on thimble. For dimensions see page 17g.	\$40.00
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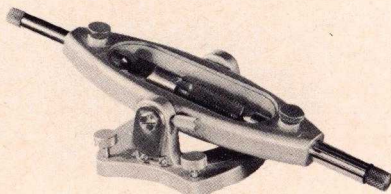
Rotary Measuring Stage

Code No.	Description	Price
52-645-005	Rotary stage with 0°-360° vernier protractor reading to 6 minutes of arc.	\$110.00



Center Support Swivel

52-645-010	Center support swivel with center opening. Inclination of +20° reading in 1°. Distance between centers 3.5". Can be attached to regular stage or rotary stage.	\$135.00
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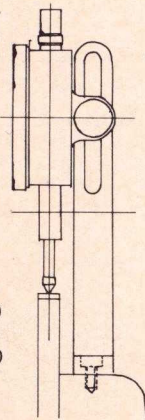
Depth Dial Gauge and Bracket

These are highly accurate gauges for measuring depths by critically focusing on the top and then on the bottom points of the measured object and then computing the difference in the two readings of the dial indicator gauge. Can only be used with high power magnification (50X or over).

52-520-135	Shockless type dial indicator gauge in 1/10,000 graduations and .050" range. — Group II — See page 44g.	\$22.50
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52-520-305	Same as above but in .001 mm — graduation — 1 cm range.	\$37.50
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52-645-050	Bracket to hold the above dial gauge on 52-640-000 Microscope.	\$25.00
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By the use and grouping of these units, the machinist or toolmaker, using the cross-slide of a jig borer, milling machine, or other available units can assemble his own Measuring Microscope to fit his particular requirements.

MICROSCOPE TUBES—SERIES PIL

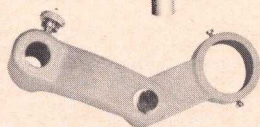
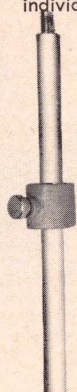
Make a measuring microscope of your jig borer, milling machine, lathe, etc. These versatile microscope units can be used for a great variety of measurements. By attaching them to the spindle of a vertical milling machine or jig borer, you can use the travel of the table for accurate measuring. A measuring microscope can also be made over the cross slide of a lathe by mounting the microscope on our MB magnetic base. Many other combinations can be worked out for accurate measuring. **The accuracy of your measurements is only limited by the accuracy of the machine tool used to carry out the movement of the measured object.**

If a thousandths reading feed dial is on your machine, and ten-thousandths measurement is required, it is a simple matter to install a "ten thousandth" dial indicator gauge on the cross slide of your machine and proceed to take your readings directly from this gauge.

SPECIAL FEATURES

Fowler microscope tubes are supplied with a precision rack and pinion for $2\frac{1}{2}$ " vertical movement. Assorted brackets which can be used for mounting the unit in various ways are available. Standard microscope achromatic objectives of various powers are standard equipment, and the focusable eyepiece is highly corrected for chromatic aberration.

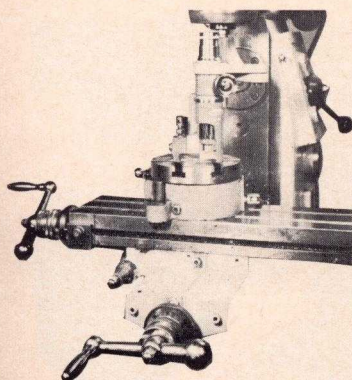
The reticles as standard equipment have fine 90° cross hair for exact measuring. The reticle can be rotated within the axis of the instrument and focused for individual eyesight.



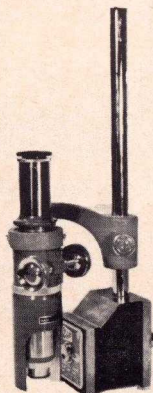
Code No.	Magnification Power X	Approximate Working Distance in Inches	Field of View	Description	Price
52-645-085	20X	0.625"	.200"	20 Power Measuring Microscope with fine 90° cross hair reticles and precision rack and pinion vertical focusing	\$50.00
52-645-090	60X	0.216"	.078"	60 Power Measuring Microscope with fine 90° cross hair reticle and precision rack and pinion vertical focusing	\$50.00
52-645-095	100X	0.1875"	.062"	100 Power Measuring Microscope with fine 90° cross hair reticle and precision rack and pinion vertical focusing	\$50.00

52-645-100 Universal set of brackets for mounting any of the above microscopes in various machine tools and stands. **\$15.00**

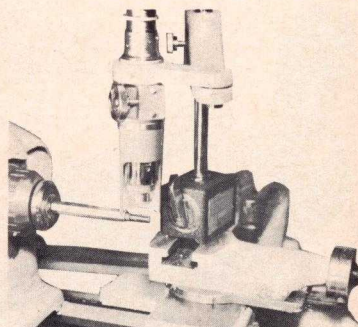
ILLUSTRATED BELOW ARE SOME APPLICATIONS OF THESE MEASURING MICROSCOPES



Used on the
Milling Machine



Mounted on a
Magnetic Stand



Used on
the Lathe

PRECISION CATHETOMETER

This is an instrument intended for the accurate measurement of vertical distances or displacements where the object or action to be measured is not accessible by ordinary means.

An Attachment for the HELIOS Sliding Scale Height Gauge and other Height Gauges

MEASURES INACCESSIBLE AREAS — CUTS INSPECTION TIME IN HALF

OPERATION OF THE CATHETOMETER

WITH THE HELIOS DIRECT READING HEIGHT GAUGE

The Cathetometer has 90° cross-hairs at the optical focus of the eyepiece which can be aligned with a line on the object to be measured. To do this, the procedure is as follows:

First, the dial is set at "zero" and also set at an "even inch" mark on the column and clamped. Then the whole sliding assembly is moved up or down to the approximate location while looking through the instrument so that the horizontal cross-hair lines-up with the initial reference mark on the object from which measurements are going to be computed, and clamped in that position.

The instrument is then levelled by means of the fine levelling screw.

The cross-hair is then again lined-up exactly, by means of the fine rack movement, and the face of the dial is re-set at an exact zero location. Thereafter any vertical movement of the telescope can be computed directly from the dial and column graduations.

There are two sets of graduations on both the column and the rack — Black for upward displacements, Red for downward.

Note: Each time that the instrument is "set ready" to take a reading, the level of the instrument should be re-checked and re-set if necessary.

SPECIAL FEATURES

This is an instrument intended for the accurate measurement of vertical distances or displacements where the object or action to be measured is not accessible by ordinary means. This instrument is designed to be used in conjunction with the Helios 20", 30", or the 40" sliding scale height gauges as described on the opposite page. It can be accurately focused on objects between 8 inches and infinity by means of rack and pinion. The image is erect. It has an inclined eye piece for convenience of viewing.

The instrument is supplied with a precision level and fine adjustment levelling screw so that accurate horizontal measurements are insured.

The telescope of the cathetometer has a very high grade achromatic objective of ample light gathering power. It is fitted with a rack and pinion adjustment which permits focusing from 8" to infinity. It has 90° cross-hairs for horizontal and vertical alignment. A very clear magnified image of the measured object is obtained at all settings of the telescope, thus insuring ease and accuracy of operation.

Telescope is furnished with a 10X Ramsden type eyepiece, which is focusable on the cross-hairs. A compound achromatic type objective renders a high quality image free of color aberration and distortion.

The telescope image is erect. Focusing range of telescope is from 8" to infinity by use of rack and pinion. Angular field at infinity is 3.6 degrees. Linear field at the shortest setting is approximately 1" (27 mm.).

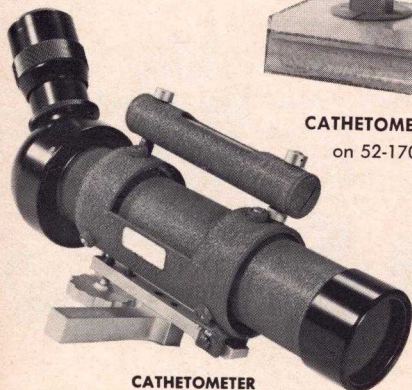
The Cathetometer can be used with any standard Height Gauge.

Code	Description	Price
52-650-000	Cathetometer with adjustable 90° cross-hairs and height gauge adapter	\$250.00
Price includes Fitted Mahogany case		

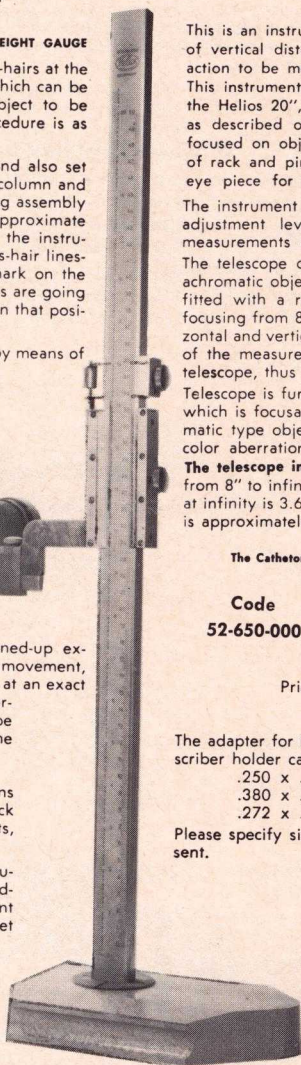
The adapter for holding the telescope on the height gauge scriber holder can be had on the following dimensions:

- .250 x .393 for American Height Gauges
- .380 x .393 for Mitutoyo Height Gauges
- .272 x .393 for Helios Height Gauges

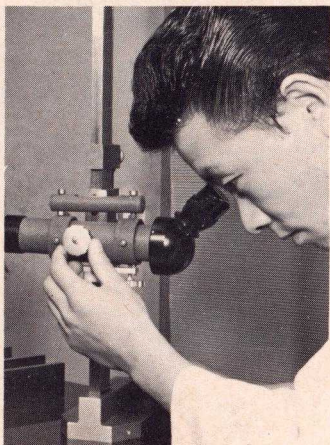
Please specify size wanted, otherwise .380 x .393 will be sent.



CATHETOMETER



CATHETOMETER being used
on 52-170-024 Height
Gauge





ADJUSTABLE CENTERING MICROSCOPE

This prismatic Microscope is designed to locate optically centers, layout lines, and contours with accuracy to .0001".

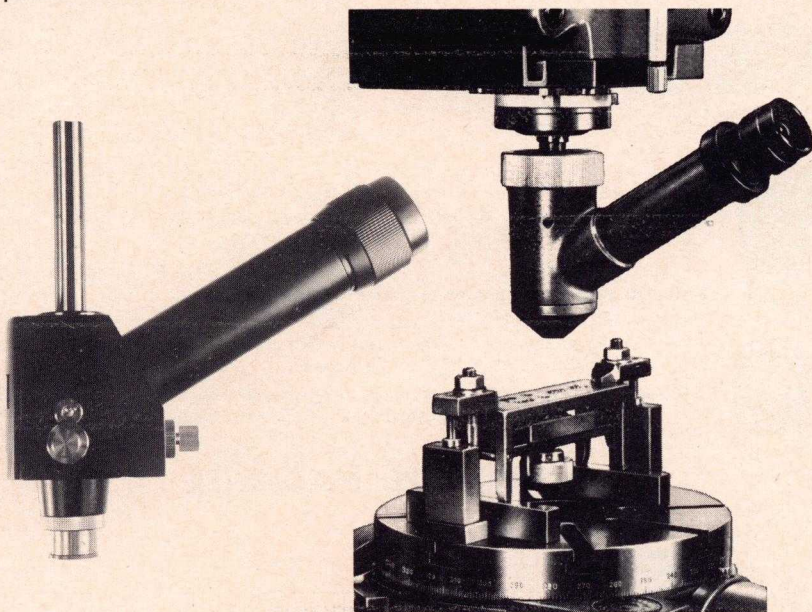
Used for accurately locating centers in drilling machines, millers, jig borers, etc.

It can also be used to MINIMIZE THE ERROR OF AN OUT-OF-TRUE SPINDLE, so that fairly accurate hole location can be achieved with old or worn-out equipment.

It is also suited for use in electrical discharge machines. (The eyepiece can be compensated for viewing through the oil film.)

It can also be used for locating the "O" starting point position on tape-controlled machines.

The Microscope is available in 20X magnification (best for general shop use) and also in 50X magnification where extreme accuracy is desired. The 50X unit is best for surface finish comparison.



SPECIFICATIONS

Two models available — 20X or 50X magnification.

The prismatic optical system is highly corrected for optical and chromatic aberrations so as to secure a clear, undistorted image. The image is upright and unreversed. It has a large field of view.

The shank of the Microscope is hardened and ground. Centering is done simply by adjusting two screws under the eyetube which move the field of view in relation to the centering reticle. The reticle has two pair of 90° cross hair lines and 19 concentric circles .010" apart which facilitates spindle run-out centering. The action of each screw is independent from the other.

SIZES AND PRICES

Code No.	Magnification	Description	Price
52-655-020	20X	Centering Microscope with 1/2" shank and 90° cross hair reticle with concentric circles. Has a working clearance of 2.600" and a field of view .380". Reticle has 8 concentric circles.	\$225.00
			Includes fitted case
52-655-050	50X	Centering Microscope with 1/2" shank and 90° cross hair reticle with concentric circles. Has a working clearance of 1.080" and a field of view .160". Reticle has 8 concentric circles.	\$235.00
			Both models are packed in fine fitted wooden case.
			Includes fitted case



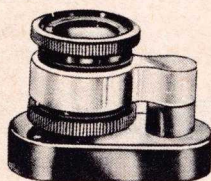
ACHROMATIC OPTICAL MAGNIFIERS

These magnifiers are made of a combination of lens elements forming a highly corrected optical system. They are specially well suited for checking accuracy of layout work and can be easily adapted for use in actual machining in lathe milling machines, etc.

They are also excellent lenses for **Printers** and **Lithographers**.



MACHINISTS, PRINTERS AND ENGRAVERS LOOPS



SWIVEL TYPE — Ultra fine quality coated achromatic lens (15X magnification).

Highly corrected, all metal swivel mount finished in Black and Chrome. Packed in leather case.

52-660-005

Code
52-660-005

Description
15 Power Magnifier—Swivel Base

Price
\$10.00



Code
52-660-007

Description
An optimum quality triple element lens of 7 power magnification in a focusing mount.

Price
\$9.00

52-660-010 A double element magnifier of excellent optical quality — 10 power magnification.

\$4.50

52-660-015 A combination of three lenses in two groups making an excellent achromatic magnifier of 15 power.

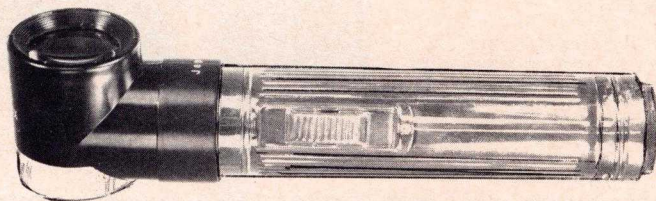
\$5.00



52-660-022 A combination of 4 lenses in three groups — coated — making an excellent achromatic magnifier of 22 magnifications.

\$7.50

ILLUMINATED MAGNIFIER



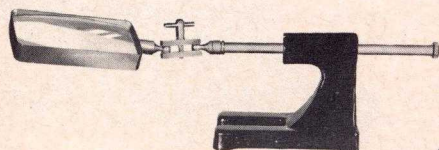
52-660-050 A 10 power Magnifier of the highest optical quality, with good resolution and perfect illumination. Ideal for machinists, toolmakers, lithographers, philatelists, and coin collectors. Battery case made of **Rust Proof Brass** — takes 2 "C" Batteries (not included).

\$5.00



ADJUSTABLE STAND MAGNIFIERS

For Inspection and Assembly of Fine Parts



Rectangular Lens 2"x4" of approx. 2 1/2x magnification mounted in sturdy horseshoe iron base of black frosted finish. Sliding rod can be adjusted forward or backward — Universal ball joint.

Lens is optically ground and polished and gives excellent undistorted images. Approx. 8" Focus.

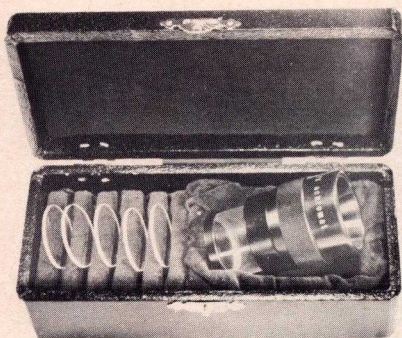
Code	Description	Price
52-660-055	"Fowler" Rectangular Lens in Adjustable Stand.	\$12.00

Fowler

OPTICAL COMPARATOR

**A measuring and inspection comparator
for the Machinist - Tool Maker - Inspector and Laboratory technician
for the Lithographer, Printer and Photo Engraver**

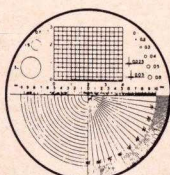
An optimum quality-triple element Kellner Achromatic Lens of 7 power magnification in a focusing mount for inspection use in plate-making, photo-engraving, etching, as well as checking dot formation in lithography work. Precision ground lens allows sharp undistorted images, completely free of aberrations.



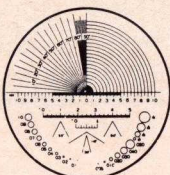
Widely used by machinists, toolmakers, and inspectors for checking angles, thread measurements, hole sizes, etc. Has many uses in the machine shop, tool room, and at the inspection bench.

The Scales are Photo etched into a glass reticule which is placed in actual contact with the measured object, thus obtaining simultaneous enlarged images of the scale and measured object. Highly accurate measurements are thus obtained. Can be used also as a high grade magnifier. Thirteen types of glass reticules as shown are available.

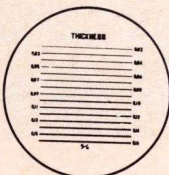
These are interchangeable in the screw in mount on the bottom unit. With them, measurements of diameter, radius, angle, and thickness can be made.



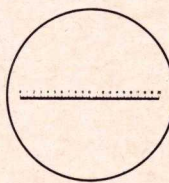
52-667-001



52-667-002

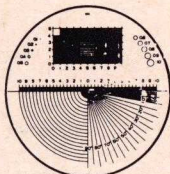


52-667-003

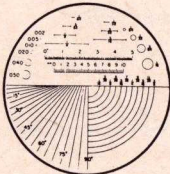


52-667-013

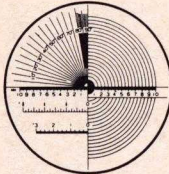
New No. 13 Reticule in inches only. .600" range in .01".



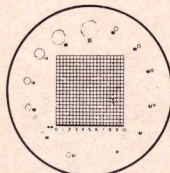
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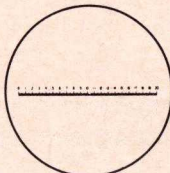
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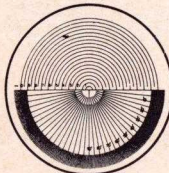
52-667-006



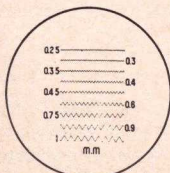
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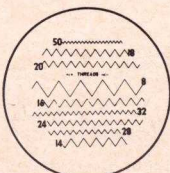
52-667-008



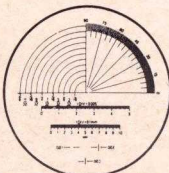
52-667-009



52-667-010



52-667-011



52-667-012

**AVAILABLE FOR IMMEDIATE
DELIVERY IN TWO SIZES**

Code

52-665-001 **\$12.50**

"Peak" 7x Comparator
with #5 Reticule in Vel-
vet lined fitted case.

52-665-005 **\$22.50**

"Peak" 7x Comparator
with Reticules in Vel-
No. 1, No. 5, No. 7, No.
8, No. 13 (5) Reticules in
Velvet case.

Other reticules available on
request. **\$3.60 ea.**

NOTE: Any other assortment
of 5 Reticules can be
substituted on above.

NEW LOWER PRICES ON RECTANGULAR GAUGE BLOCKS AND ACCESSORIES

A comprehensive line of measurement standards which meet most of the everyday demands of industry. With these units the tool room and inspection department can control measurements to meet the most rigid demands of gauging and inspection.

Accuracy is assured when using these "FOWLER" gauge blocks. They are made of "stabilized" steel, under carefully controlled conditions to insure extreme accuracy, parallelism, and flatness. Manufactured in Sweden by the leading manufacturer of Gauge Blocks.

Grade "A" Sets are accurate to $- .000002$ and $+ .000006$. Grade "B" Sets are accurate to $\pm .000050$ ". **A certificate of inspection is furnished with each set.** Each set is packed in a beautifully fitted wooden case, specially designed for ease of handling of blocks.

All Grade "A" Blocks are traceable to the National Bureau of Standards and are so certified.



INSPECTION GRADE SETS

Code No.	Grade	Description				Price
52-670-001	A	81 pc. Set consisting of the following rectangular gauge blocks				\$295.00
		9 Gauge Blocks	.1001"	—	.1009"	(price
		49 Gauge Blocks	.101 "	—	.149 "	includes
		19 Gauge Blocks	.050 "	—	.950 "	certificate
		4 Gauge Blocks	1.000 "	—	4.000 "	of
						inspection)
52-670-010	A	36 pc. Set consisting of the following rectangular gauge blocks				\$158.50
		1 Gauge Block	.05005"	—		(price
		9 Gauge Blocks	.0501 "	—	.0509"	includes
		9 Gauge Blocks	.051 "	—	.059 "	certificate
		10 Gauge Blocks	.050 "	—	.150 "	of
		5 Gauge Blocks	.100 "	—	.500 "	inspection)
		2 Gauge Blocks	1.000 "	—	2.000 "	

SHOP GRADE SETS

52-670-015	81 pc. Set consisting of the same composition as our 52-670-001 but accurate only to $\pm .000050$ "	\$195.00 (price includes certificate of inspection)
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INDIVIDUAL SIZE GAUGE BLOCKS

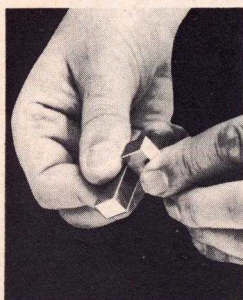
Individual FOWLER Blocks Are Supplied in the Same Grade as the Sets
Grade A +6 -2

Block Sizes	Price Rectangular Blocks
.05005	\$10.00
.0501, .0502 to .0509	8.00
.051, .052 to .059	8.00
.060	8.00
.070, .080, .090	7.50
.160, .170, .180, .190	6.25
.1001, .1002 to .1009	8.00
.101, .102 to .149	8.00
.050	8.00
.100	8.00
.150	8.00
.200, .250	6.50
.300, .350, .400	7.00
.450, .500 to .850	8.00
.900, .950	9.50
1.000	10.00
2.000	13.00
3.000	15.00
4.000	18.00

Carbide Wear Blocks

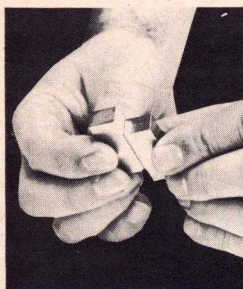
0.050	\$24.00 Pair
0.100	\$24.00 Pair

Note: Wear Blocks Sold Only in Pairs

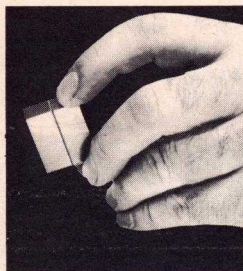


AVOID scratching the surface of one block with a corner of the other by placing them together in this manner.

PRESS the blocks firmly together while rotating them slightly back and forth.



SWING the blocks into alignment, maintaining a firm pressure. This action insures that no dust or excess oil remains between the wrung blocks.



WRUNG BLOCKS will cling firmly together. To separate wrung gauge blocks, rotate and slide one surface from the other. Never break or pull wrung blocks apart, as this will cause microscopic (but cumulative) damage to the surfaces.

NOTES ON THE CARE AND USE OF PRECISION BLOCKS

The true value of a Gauge Block lies in the accuracy to which it is finished, and therefore the utmost care in the use and maintenance of these Blocks is absolutely necessary in order to maintain this accuracy.

Measuring surfaces finished in millionths of an inch, if expected to render accurate reference surfaces, must be perfectly clean and free from nicks, burrs, or raised scratches, in order that Gauge Blocks can be wrung together. If the Gauge Blocks are maintained in this condition virtually no build up of tolerances will occur over any combination of Blocks.

Proper wringing technique is important.

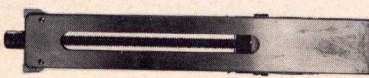
"FOWLER" GAUGE BLOCK ACCESSORIES FOR RECTANGULAR BLOCKS



Base Block

Gauge Block mounting surface lapped
flat and parallel with base
Size of base 4" x 2 3/4" x 1.735" high

Code No.	Price
52-700-005	\$30.00

Scriber Point	Code No.	Description	Price	Quantity
	52-700-010	Used for scribing lines	\$10.00	1
Center Point				
	52-700-015	Used for locating centers	10.00	1
Points				
	52-700-020	Used for checking graduations	20.00	Pair
Cylindrical Jaws		Used for inside and outside measurements and setting of instruments-accuracy		
	52-700-025	.100" Radius Size	15.00	Pair
	52-700-030	.200" Radius Size	18.00	Pair
	52-700-035	.250" Radius Size	18.00	Pair
	52-700-040	.500" Radius Size	22.00	Pair
	52-700-045	.750" Radius Size	22.00	Pair
Flat Jaws		Two sides lapped and accurately flat, parallel and to size. Accuracy $\pm .000002$ "		
	52-700-050	.750" Height 6" Long	20.00	Pair
Jaws with Reference Lines		Used for spacing blocks within limits		
	52-700-055	.0625"	10.00	Pair
Jaws with Beveled Ends				
	52-700-060	.750" Height 4" Long	20.00	Pair
	52-700-065	.750" Height 6" Long	22.00	Pair
Holders		Capacity		
	52-700-070	2.250"	12.50	1
	52-700-075	4.000"	17.50	1
	52-700-080	6.000"	22.50	1
	52-700-085	10.000"	30.00	1
				

Case for 14 Piece Set	52-700-090	\$25.00
Case for 27 Piece Set	52-700-095	\$18.00

**"FOWLER" COMPLETE ACCESSORY SETS
FOR RECTANGULAR GAUGE BLOCKS
"A" GRADE ACCURACY ($\pm .000002$)**

With these sets the uses of gauge blocks increases tremendously, making it possible to make special gauges of practically unlimited variety, thus paying for themselves in a short time.

14 PIECE ACCESSORY

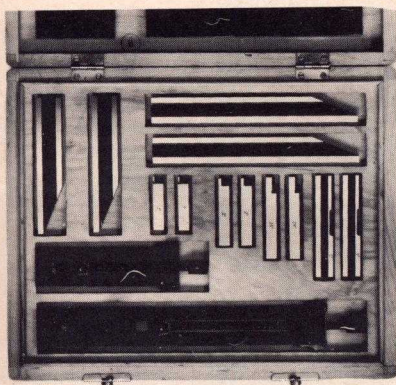
SET
Code No.
52-705-010
Set Consists of
Following Items:

DESCRIPTION
OF ITEMS
CONTAINED IN
14 AND 27 PIECE
SETS

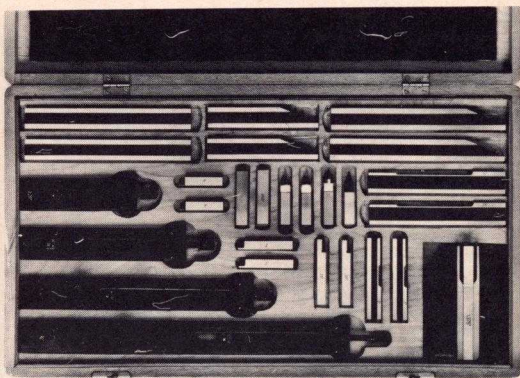
27 PIECE ACCESSORY

SET
Code No.
52-705-005
Set Consists of
Following Items:

1 Pair	.100" Radius Cylindrical Jaws	1 Pair
1 Pair	.200" Radius Cylindrical Jaws	1 Pair
1 Pair	.250" Radius Cylindrical Jaws	1 Pair
1 Pair	.500" Radius Cylindrical Jaws	1 Pair
	.750" Radius Cylindrical Jaws	1 Pair
1 Pair	Jaws-Beveled Ends .750"x4"L	1 Pair
1 Pair	Jaws-Beveled Ends .750"x6"L	1 Pair
1 each	Holder 2.250" Capacity	1 each
	Holder 4.000" Capacity	1 each
1 each	Holder 6.000" Capacity	1 each
	Holder 10.000" Capacity	1 each
	Base-4"x2 3/4"x1.735" Height	1 each
	Scriber Point	1 each
	Center Point	1 each
	Points-Checking Graduations	1 Pair
	Jaws-With Reference Line	1 Pair
	Flat Jaws .750"x6"L	1 Pair



14 Piece Set
52-705-010
Price \$120.00



27 Piece Set
52-705-005
Price \$250.00

"Fowler-Rubert" System of Surface Roughness Standards

A group of standards for checking, identifying, and specifying by symbol the degree of roughness of machine parts. This system covers every machining method known and every obtainable value.

Code 52-720-000 COMPOSITE SET

Ideal for use in the Drafting Room, Engineering Dept. or in the small shop.

This set has 30 specimens $\frac{7}{8}$ " x $\frac{3}{8}$ " comprising

3 Specimens Flat Lapping	— 2, 4 and 8 μ " CLA
3 .. Reaming	— 16, 32 and 63 μ " CLA
6 .. Grinding	— 2, 4, 8, 16, 32 and 63 μ " CLA
6 .. Horizontal Milling	— 16, 32, 63, 125, 250 & 500 μ " CLA
6 .. Vertical Milling	— 16, 32, 63, 125, 250 & 500 μ " CLA
6 .. Turning	— 16, 32, 63, 125, 250 & 500 μ " CLA

FEATURES

Our economy, composite Set No. 52-720-000 as shown here consists of 30 specimens $\frac{7}{8}$ " x $\frac{3}{8}$ " of electro-formed solid nickel. Each type of surface finish, such as flat lapping, reaming, grinding, horizontal milling, vertical milling and turning, is truly and consistently reproduced so as to give the operator or designer a realistic idea of the feel, appearance, and texture of the machined components.

A set of instructions is included with each set. By means of this set, or one of our individual (larger) standards specimen scale sets, quick and easy comparisons can be made, thus eliminating costly checking methods, saving valuable production time, and stopping the production of scrap caused by poor finishes.

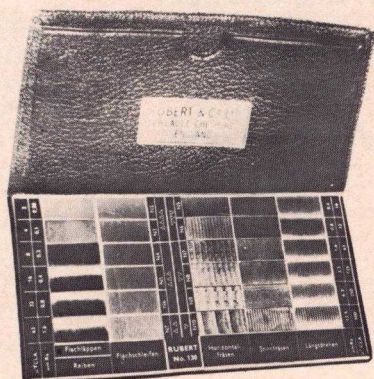
ALSO AVAILABLE IN INDIVIDUAL MACHINING OPERATION SETS

These sets come in heavy molded frames, each containing a set of scales for each machining operation.

They are color coded, and CLA values are shown in micro inches and microns. Each scale measures 1" x $\frac{5}{8}$ ".

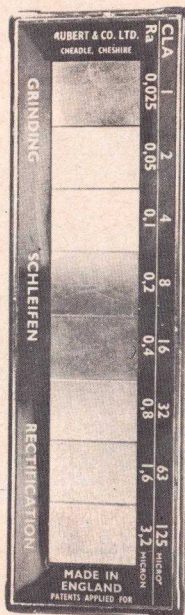
Instructions are printed on the back of each frame.

All of these scales are manufactured to ASA-B-46-1-1962 military standard 10A with a range available in micro inches (CLA) from 1 to 2000. List of sets available as follows.



COMPLETE SCALE SET OF 30 SPECIMENS IN SPECIAL LEATHER WALLET and INSTRUCTION SHEET

PRICE \$29.50



Picture shown is that of the Surface Grinding Set No. 52-725-005

Code No.	Machining Method	Colour	Number of Specimens	Range in Micro Inches CLA
52-725-005	Surface Grinding	BLACK	8	1—125
52-725-010	Cylindrical Grinding	BLACK	8	1—125
52-725-015	Flat	WHITE	8	1—8
	Criss-Cross			1—8
52-725-025	Lapping	WHITE	8	1—8
	Parallel			1—8
52-725-035	Cylindrical Lapping	WHITE	8	1—8
	Superfinishing			1—8
52-725-040	Face Turning (Flat)	YELLOW	8	16—2000
52-725-045	Turning (Cyl.)	YELLOW	8	16—2000
52-725-050	End Milling	BROWN	8	16—2000
52-725-060	Reaming	RED	8	32—250
	Drilling			63—500
52-725-065	Horizontal Milling	ORANGE	7	32—2000
52-725-070	Diamond Turning	SILVER	6	1—32
52-725-075	Shaping or Planing	PINK	7	32—2000
52-725-080	Finishing	GREY	6	1—125

Price for each of the above \$27.50 per Framed Set. We can also supply a complete set of 90 Specimens — Set No. 52-726-000. Packed in a case containing twelve sets of scales from 52-725-005 — 52-725-075. Price \$325.00



ASSEMBLY and INSPECTION MAGNIFIER

75g.

Fluorescent Ring Light around 5" Diameter Lens

NEW MODEL — Infinite Positioning

SPECIAL FEATURES

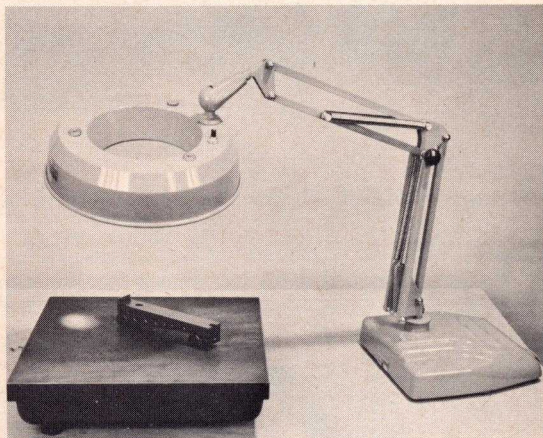
5" three dioptré distortion free lens of flawless quality optical glass. Lens is precision ground and polished.

Shadowless, cool, ring-light illumination. Uses standard 110V AC 20 watt circline fluorescent tube T-9. Off-On Switch.

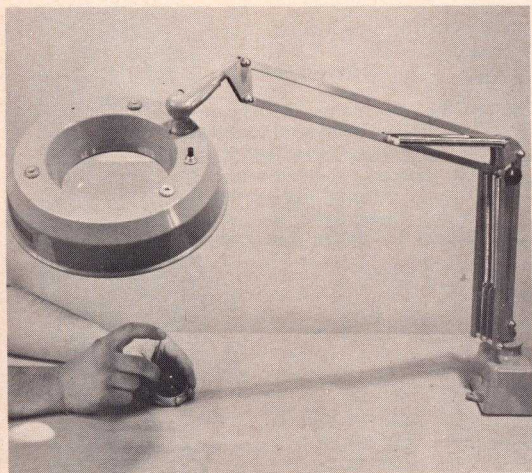
Sturdy all metal construction insures ease of operation and trouble free performance.

Spring balanced arms enable lamps to be lowered, raised or turned to any angle or position with fingertip control. Once set, lamps remain in place without movement. Extra long arm length insures large area coverage. Valuable for use in assembly work, miniature soldering work, laboratory work, and for hobbyists.

Extra 2X lens available which increases magnification to 5X.



52-630-005 Infinite Positioning 14" High — 18" Reach



52-630-010 24" Long Arm Reach

Code	DESCRIPTION	PRICE
52-630-005	Three dioptré illuminated magnifier with weighted moveable base. 14" high—18" reach. Price includes bulb.	\$45.00
52-630-010	Three dioptré illuminated magnifier with base for permanent table or machine mounting. 15" high—24" reach. Price includes bulb, and base clamp.	\$38.00
52-630-015	2X Auxiliary lens to increase magnification.	\$9.00

"FOWLER" METAL ETCHING PEN

A revolutionary new tool which etches on steel-brass-aluminum-copper etc.



With this amazing pen, etching on copper, copper alloy, stainless steel, hardened steel tools, castings, restoring graduations on micrometers, calipers, etc. becomes as easy as writing.

No electrical flux is necessary, a special acid combination flows thru, like ink thru a ball point pen and a permanent etch is written on the metal.

Since the acid does not affect chrome it can be used to restore graduations on Height Gauges, calipers and micrometers. Ideal for toolroom use and general marking around the machine shop.

Identify your personal tools by marking your initials. It can be carried in the pocket like a pen.

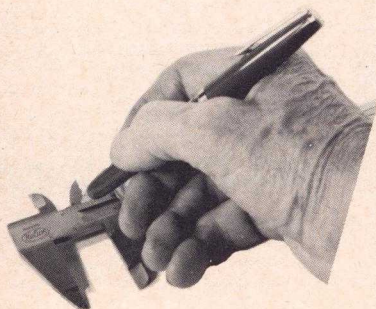


**Code
No.**

Description

Price

52-730-001	Ball Point Metal Etcher and extra refill cartridge. On the upper part of the pen — to remove second cartridge unscrew the lower end of the barrel.	\$5.50 \$60.00 Dz.
52-730-002	Extra Cartridges (Only)	\$2.50 \$27.00 Dz.



"FOWLER" MASTER PRECISION LEVEL

This is a Master Precision Level for accurately checking the work of machinists and toolmakers, the setting up of machinery, and other work that requires extreme leveling accuracy.



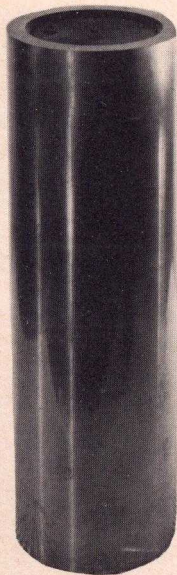
SPECIAL FEATURES

The main level vial is graduated to 10 second accuracy (1 division equals .0005" per foot).

There is an auxiliary level which enables the user to check side declinations. The body of the level is of cast iron and the base is hand scraped for extreme accuracy. There are plastic knobs on the frame to insulate the instrument from the heat of the hand.

Code		Price
52-422-008	8" Master	\$40.00
52-422-012	12" Master	\$50.00

"FOWLER" PRECISION CYLINDER LEVEL



These cylindrical squares are used in surface plates as a 90° reference angle. Can be used for checking squares, height gauges and many other instruments.

SPECIAL FEATURES

The squares are hardened and the ends are lapped to 90° angular accuracy with the cylinder as follows:

6" square to $\pm .00010$
12" square to $\pm .00015$
25" square to $\pm .00020$

Code No.	Description	Approx. Wt.	Price
52-750-006	6" High x 3" Dia. Square	8 lbs.	\$ 65.00
52-750-012	12" High x 4" Dia. Square	19 lbs.	\$125.00
52-750-025	25" High x 5" Dia. Square	50 lbs.	\$225.00

Prices include
fitted wooden case

Millimeters to Inches
(Basis: 1 inch = 25.4 millimeters)

Millimeters	Inches	Millimeters	Inches	Millimeters	Inches	Millimeters	Inches
1	0.039370	26	1.023622	51	2.007874	76	2.992126
2	.078740	27	1.062992	52	2.047244	77	3.031496
3	.118110	28	1.102362	53	2.086614	78	3.070866
4	.157480	29	1.141732	54	2.125984	79	3.110236
5	.196850	30	1.181102	55	2.165354	80	3.149606
6	.236220	31	1.220472	56	2.204724	81	3.188976
7	.275591	32	1.259843	57	2.244094	82	3.228346
8	.314961	33	1.299213	58	2.283465	83	3.267717
9	.354331	34	1.338583	59	2.322835	84	3.307087
10	.393701	35	1.377953	60	2.362205	85	3.346457
11	.433071	36	1.417323	61	2.401575	86	3.385827
12	.472441	37	1.456693	62	2.440945	87	3.425197
13	.511811	38	1.496063	63	2.480315	88	3.464567
14	.551181	39	1.535433	64	2.519685	89	3.503937
15	.590551	40	1.574803	65	2.559055	90	3.543307
16	.629921	41	1.614173	66	2.598425	91	3.582677
17	.669291	42	1.653543	67	2.637795	92	3.622047
18	.708661	43	1.692913	68	2.677165	93	3.661417
19	.748031	44	1.732283	69	2.716535	94	3.700787
20	.787402	45	1.771654	70	2.755906	95	3.740157
21	.826772	46	1.811024	71	2.795276	96	3.779528
22	.866142	47	1.850394	72	2.834646	97	3.818898
23	.905512	48	1.889764	73	2.874016	98	3.858268
24	.944882	49	1.929134	74	2.913386	99	3.897638
25	.984252	50	1.968504	75	2.952756	100	3.937008

Decimal Equivalents
of 8ths, 16ths, 32nds, 64ths

8ths	32nds	64ths	64ths
$\frac{1}{8} = .125$	$\frac{1}{32} = .03125$	$\frac{1}{64} = .015625$	$\frac{33}{64} = .515625$
$\frac{1}{4} = .250$	$\frac{3}{32} = .09375$	$\frac{3}{64} = .046875$	$\frac{35}{64} = .546875$
$\frac{3}{8} = .375$	$\frac{5}{32} = .15625$	$\frac{5}{64} = .078125$	$\frac{37}{64} = .578125$
$\frac{1}{2} = .500$	$\frac{7}{32} = .21875$	$\frac{7}{64} = .109375$	$\frac{39}{64} = .609375$
$\frac{5}{8} = .625$	$\frac{9}{32} = .28125$	$\frac{9}{64} = .140625$	$\frac{41}{64} = .640625$
$\frac{3}{4} = .750$	$\frac{11}{32} = .34375$	$\frac{11}{64} = .171875$	$\frac{43}{64} = .671875$
$\frac{7}{8} = .875$	$\frac{13}{32} = .40625$	$\frac{13}{64} = .203125$	$\frac{45}{64} = .703125$
16ths	$\frac{15}{32} = .46875$	$\frac{15}{64} = .234375$	$\frac{47}{64} = .734375$
$\frac{1}{16} = .0625$	$\frac{17}{32} = .53125$	$\frac{17}{64} = .265625$	$\frac{49}{64} = .765625$
$\frac{3}{16} = .1875$	$\frac{19}{32} = .59375$	$\frac{19}{64} = .296875$	$\frac{51}{64} = .796875$
$\frac{5}{16} = .3125$	$\frac{21}{32} = .65625$	$\frac{21}{64} = .328125$	$\frac{53}{64} = .828125$
$\frac{7}{16} = .4375$	$\frac{23}{32} = .71875$	$\frac{23}{64} = .359375$	$\frac{55}{64} = .859375$
$\frac{9}{16} = .5625$	$\frac{25}{32} = .78125$	$\frac{25}{64} = .390625$	$\frac{57}{64} = .890625$
$\frac{11}{16} = .6875$	$\frac{27}{32} = .84375$	$\frac{27}{64} = .421875$	$\frac{59}{64} = .921875$
$\frac{13}{16} = .8125$	$\frac{29}{32} = .90625$	$\frac{29}{64} = .453125$	$\frac{61}{64} = .953125$
$\frac{15}{16} = .9375$	$\frac{31}{32} = .96875$	$\frac{31}{64} = .484375$	$\frac{63}{64} = .984375$

Decimal Equivalents
of 7ths, 14ths, and 28ths

7th	14th	28th	Decimal	7th	14th	28th	Decimal
		1	.035714			15	.535714
	1		.071429	4			.571429
		3	.107143			17	.607143
1			.142857		9		.642867
	5		.178571			19	.678571
	3		.214286	5			.714286
		7	.25			21	.75
2			.285714		11		.785714
	9		.321429			23	.821429
	5		.357143	6			.857143
		11	.392857			25	.892857
3			.428571		13		.928571
	13		.464286			27	.964286
	7		.5				

Decimal Equivalents
of 6ths, 12ths, and 24ths

6th	12th	24th	Decimal	6th	12th	24th	Decimal
		1	.041667	3			.5
	1		.083333			13	.541666
		3	.125		7		.583333
1			.166666			15	.625
	5		.208333	4			.666666
	3		.25			17	.708333
		7	.291666		9		.75
2			.333333			19	.791666
	9		.375				.833333
	5		.416666	5			.875
		11	.458333		11		.916666
						23	.958333

NUMERICAL INDEX

Code No.	Former Fowler Stock No.	Description	Page	Code No.	Former Fowler Stock No.	Description	Page
52-005-004	VD-4H	Dial Caliper	2g	52-120-007	AFR8	Height Gauge	7g
52-005-010	VD-4HC		2g	52-120-010	AFR10	Attachment	7g
52-010-006	VD-6H		2g	52-125-006	T1-A	Dial Depth Gauge	7g
52-010-016	VD-6HC		2g	52-125-008	SG8		8g
52-015-006	VD-6F		2g	52-125-012	SG12		8g
52-020-006	VDP-6H		3g	52-135-012	SGP12		8g
52-025-007	VDP-7H		3g	52-140-008	VDG-8	Vernier Depth Gauge	8g
52-025-009	VDP-7HC		3g	52-140-012	VDG-12		8g
52-025-010	VDP-10H		3g	52-145-008	M-VDG-8		8g
52-025-012	VDP-12H		3g				
52-035-012	VCP-12H		3g	52-150-005	AD2	Adjust. Depth Gauge	9g
52-040-024	VDP-244		3g	52-155-008	GH-8	Surface Gauge	9g
52-040-036	VDP-36H		3g	52-155-012	GH-12	—Hardened	9g
52-045-006	NS-6H	Vernier Caliper	4g	52-160-008	G-8	Surface Gauge	9g
52-050-006	CM-6H		4g	52-160-012	G-12	—Not Hardened	9g
52-055-006	TL-6H		4g	52-165-008	HD-8H	Dial Height Gauge	10g
52-060-006	TL-6F		4g	52-165-012	HD-12H		10g
52-065-008	CM8-1		5g	52-165-018			10g
52-065-012	CM12-1		5g	52-165-020	HD-20H		10g
52-065-020	CM20-1		5g	52-165-024			10g
52-065-024	CM24-1		5g	52-165-030			10g
52-065-040	CM40-1		5g	52-165-036	HD-30H		10g
52-065-048	CM48-1		5g	52-165-040			10g
52-065-060	CM60-1		5g	52-165-048	HD-40H		10g
52-065-065	CM60-2		5g	52-170-009	HG-8	Vernier Height Gauge	11g
52-065-072	CM72-1		5g	52-170-012	HG-12		11g
52-065-075	CM72-2		5g	52-170-018	HG-18		11g
52-065-120	CM120-4		5g	52-170-024	HG-24		11g
52-075-008	PM8-1		5g	52-170-036	HG-36		11g
52-075-012	PM12-1		5g	52-170-048	HG-48		11g
52-080-006	CM-53H		6g	52-170-080	HG-80		11g
52-085-008	DCM-8H		6g	52-175-012	12"	Chesterman Height Gauge	12g
52-085-012	DCM-12H		6g	52-175-018	18"		12g
52-085-024	DCM-24H		6g	52-175-024	24"		12g
52-085-048	DCM-48H		6g	52-175-040	40"		12g
52-085-060	DCM-60H		6g	52-175-048	48"		12g
52-085-072	DCM-72H		6g				
52-095-006	SJ6H		7g	52-180-006	H904	Instant Height Gauge	13g
52-095-008	SJ8H		7g	52-180-012	H910		13g
52-105-004	OSC4	O.D. Spring Caliper	42g	52-185-006	HC-61A	Height Transfer Micrometer	15g
52-105-006	OSC6		42g	52-185-012	HC-101A		15g
52-107-004	ISC4	I.D. Spring Caliper	42g	52-185-106	HC-60A		(Old Style, Limited Quantity, Not Shown)
52-107-006	ISC6		42g	52-185-112	HC-100A		
52-110-004	HSG4	Hermaphrodite Caliper	42g	52-190-012	HC-101B		15g
52-110-006	HSG6		42g	52-195-006	HC-7	Height Transfer Micrometer Riser Block	15g
52-115-004	SD4	Spring Divider	42g	52-195-012	HC-13		15g
52-115-006	SD6		42g	52-195-024	HC-25		15g
				52-200-005	1011	Student Kit	16g
				52-200-010	1012		16g
				52-210-005	MH-1/2	Micrometer Head	17g

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52-210-015	MH-2		17g	52-252-002			20g
52-210-020	MH-3		17g	52-255-005	EG-500	Holmike	23g
52-215-004	HO-4	Micrometer Set	18g	52-255-010	EG-625		23g
52-215-006	HO-6		18g	52-255-015	EG-1		23g
52-215-012	HO-12		18g	52-255-020	EG-2		23g
52-220-004	C-4	Micrometer Case	18g	52-255-022	EG-3		23g
52-220-006	C-6		18g	52-255-025	EG-4		23g
52-220-012	C-12		18g	52-255-027	EG-5		23g
52-225-005	DM2½-3	Depth Micrometer Set	18g	52-255-030	EG-6		23g
52-225-010	DM4-3		18g	52-255-035	EG-7		23g
52-225-015	DM4-6		18g	52-255-040	EG-8		23g
52-230-001	HM-1	Micrometer- Insulated Frame	19g	52-255-045	EG-9		23g
52-230-002	HM-2		19g	52-255-050		Holmike Extension Rods	23g
52-235-001	H-1	Micrometer-Forged Chrome Frame	19g	52-255-055			23g
52-235-002	H-2		19g	52-260-006	ER-6		23g
52-238-001		Wood Case for Style 52-230 and 52-235 Micrometers	19g	52-260-007	ER-7	Groove Micrometer	24g
52-238-002			19g	52-260-008	ER-8		24g
52-240-003	HX-3	Micrometer-Forged Enameled Frame	19g	52-265-000	GM-1	Deep Hole Light	24g
52-240-004	HX-4		19g	52-270-000	DHL	Pass-Type Micrometer	25g
52-240-005	HX-5		19g	52-275-001	RP011	Control Micrometer	25g
52-240-006	HX-6		19g	52-275-002	RP012		25g
52-240-007	HX-7		19g	52-280-000	W3185EZ	Ball Attachment	25g
52-240-008	HX-8		19g	52-285-000		Giant Inspection Micrometers	26g
52-240-009	HX-9		19g	52-290-006	W3175Z6		26g
52-240-010	HX-10		19g	52-290-018	W3175718		26g
52-240-011	HX-11		19g	52-290-048	W3175Z48		26g
52-240-012	HX-12		19g	52-290-084	W3175Z84		26g
52-242-003		Wood Case for Style 52-240 Micrometer	19g	52-295-006	950S-6	Sheffield Tool Steel Fully Tempered Flexible Rules Satin Chrome Finish	28g
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52-242-005			19g	52-295-018	950S-18		28g
52-242-006			19g	52-295-024	950S-24		28g
52-242-007			19g	52-300-006	951S-6		28g
52-242-008			19g	52-300-012	951S-12		28g
52-242-009			19g	52-300-018	951S-18		28g
52-242-010			19g	52-300-024	951S-24		28g
52-242-011			19g	52-310-006	952S-6		28g
52-242-012			19g	52-310-012	952S-12		28g
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52-247-000	188	Micrometer Stand	20g	52-320-006	953S-6		29g
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52-250-002	GH-2	Disc Micrometer	20g	52-320-018	953S-18		29g
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				52-330-012	824S-12		29g
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52-350-018	845S-18	Satin Chrome	29g	52-422-012		Level	77g
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52-360-012	820S-12		29g	52-425-005	BSH-5		32g
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52-370-024	4R24-1	Square Set	30g	52-430-005	SH-5		32g
52-370-112	4M12-1		30g	52-430-008	SH-8		32g
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52-380-006	3R6-1	3 Piece	30g	52-432-009	S-9		32g
52-380-012	3R12-1	Combination	30g	52-432-012	S-12		32g
52-380-018	3R18-1	Square Set	30g	52-435-000	MDS	Double Square	33g
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52-385-012	3R12-2		30g	52-440-012	VP12	Protractor	34g
52-385-018	3R18-2		30g	52-445-005	VA6	Vernier Bevel	34g
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52-400-012	1R12-1	Machinists	31g	52-460-010	1000	Gauge	36g
52-400-018	1R18-1	Square Blade	31g	52-465-005	C1	Toolmakers	36g
52-400-024	1R24-1		31g	52-465-010	C2	Clamp	36g
52-400-112	1M12-1		31g	52-465-015	C3		36g
52-405-006	1R6-2		31g	52-466-002	TV2	Toolmakers Vise	37g
52-405-012	1R12-2		31g	52-466-003	TV3		37g
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			71g	52-725-025	118		74g
52-690-050	Carbide Wear Blocks		71g	52-725-035	119		74g
52-690-100				52-725-040	120		74g
				52-725-045	121		74g
				52-725-050	122		74g
				52-725-060	123		74g
52-700-005	Rectangular Gauge Block Accessories		71g	52-725-065	124		74g
52-700-010			72g	52-725-070	125		74g
52-700-015			72g	52-725-075	126		74g
52-700-020			72g	52-726-000	127		74g
52-700-025			72g				
52-700-030			72g	52-730-001		Acid Pen	76g
52-700-035			72g	52-730-002			76g
52-700-040			72g				
52-700-045			72g	52-750-006		Cylindrical Squares	77g
52-700-050			72g	52-750-012			77g
				52-750-025			77g

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Hardness Testers	56g	Depth Gauges	7g, 8g
Holmike	21g, 22g, 23g	Gauges	44g, 45g
Magnetic Base	55g	Height Gauges	7g, 10g
Micrometer Ball Attachment	25g	Indicators	44g, 45g
Microscope	62g, 63g, 64g, 65g	Micrometers	20g
ADAPTORS, Caliper to Height Gauge	9g	Test Indicators	49g, 50g, 51g, 52g, 53g
Micrometer Ball	25g	Thickness Gauges	48g
ADJUSTABLE PARALLELS	33g	DISC MICROMETER	20g
AMPLIFIER, Electronic	57g	DIVIDERS, Spring	42g
Probe Head, Plunger Head	58g	DRILL GAUGES	39g
ANGLE GAUGE, Adjustable	7g	DRIVE PIN PUNCHES	41g
APPRENTICE KIT, Students	16g	E	
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Roughness	74g	GROOVE MICROMETER	24g
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D		Gauges, Micrometer	13g
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RING, Gauges	46g
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Surface Roughness	74g
SCREW DRIVERS, Jewelers	40g
SCREW PITCH GAUGES	40g
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SINE BARS, Plates	35g
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Machinists, Hardened	32g
STANDS, Gauge, Dial	54g, 55g
Hardness Tester	56g
Indicator	54g, 55g
Magnetic	55g
Micrometer	20g
Transfer	60g
STUDENT KIT	16g
SURFACE GAUGES	9g
Roughness Gauges	74g

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TELESCOPING GAUGES	38g
TEST INDICATORS,	
Dial	49g, 50g, 51g, 52g, 53g
TESTER, Hardness Portable	56g
THICKNESS GAUGES	40g, 48g
TOOLMAKERS Height Gauge	13g
Height Transfer Micrometer	14g, 15g
Microscope	62g, 63g, 64g
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VERNIER Calipers	4g, 5g, 6g, 7g
Dial Calipers	2g, 3g
Depth Gauges	8g
Height Gauges	11g, 12g
Protractors	34g
VISES, Toolmakers	37g
Magnetic	37g
Pin	34g

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WIGGLERS	53g
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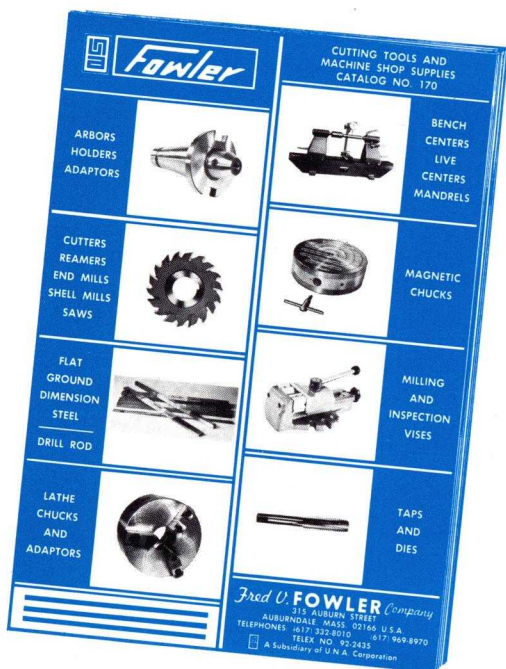
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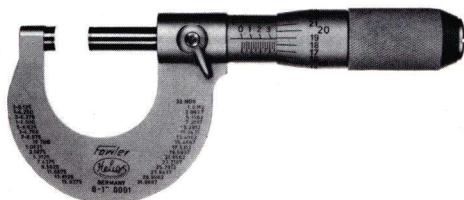


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